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THE
DENTAL REGISTER,

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J. TAFT, D. D. S., EDITOR.

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VOL. XXIX.]

JANUARY, 1875.

[No. 1.

ANÆSTHETICS.

BY GEO. B. HARRIMAN, D. D. S., M. D., BOSTON.

The subject of anæsthesia now claiming the attention of the reader is replete with interest to every intelligent mind. The human body has always been subject to injury, caused either by accident or disease. In numerous cases, the methods of repair and relief have been attended by the most intense suffering, without any apparent means for its mitigation. The knife has cut tumors from the body, bones have been sawn apart, limbs have been amputated, arteries and nerves dissected, teeth extracted, and all of the endless variety of surgical operations performed without any mode of benumbing the susceptibility to pain be known or attempted.

The anguish and suffering endured from surgical and dental operations in former times, when contemplated by a

thoughtful mind, causes an involuntary shudder, which, however, quickly passes away before the light of the discoveries of the present day, and he remembers that the same operations are now daily performed without the slightest degree of pain being felt by the patient.

No wonder, therefore, that at the first achievements of anæsthetics, the hearts of philanthropists beat with joy, and dental and other surgeons were greatly rejoiced. No wonder, when, after repeated experiments, it became a settled fact that pain was entirely unknown to the subject of capital operations, that Oliver Wendel Holmes, M. D., a favorite (as all will attest), of science and the muses, declared: "The knife is searching for disease, the pulleys are dragging back dislocated limbs—nature, herself, is working out the primal curse which doomed the tenderest of her creatures to the sharpest trials; but the fierce extremity of suffering has been steeped in the waters of forgetfulness, and the deepest furrow in the knotted brow of agony has been smoothed forever." No marvel, that the late John C. Warren, M. D., of Boston, a leading surgeon, who had long witnessed the terrible suffering of his numerous patients while enduring surgical operations, when he was assured of the power of anæsthetics, exclaimed: "Who could have imagined that drawing the knife over the delicate skin of the face might produce a sensation of unmixed delight! That the turning and twisting of instruments in the most sensitive bladder might be accompanied by a beautiful dream."

To all this, the dental-surgeon of the days when patients dragged themselves with reluctant step to the chair, might add, "How amazing, that the profession can now perform their most difficult operations, whilst they, who are being racked and torn, are entirely insensible. But so it is! All honor to the great Creator who has given to us the great blessing, anæsthetics. By the term, anæsthetic, is understood a substance the effect of which is to cause a partial or entire suspension of nervous power. Thereby, benumbing the sense of feeling or producing insensibility. To produce anæsthesia or effect this insusceptibility to pain, had long

been the desideratum of surgical operators and their patients. About two hundred years ago, a Frenchman named Papin, assured himself by repeated experiments that consciousness of pain, during any surgical operation, might be destroyed by the use of an anæsthetic, similar to what is denominated chloroform. But his associates and the literati of the medical profession pronounced his ideas as chimerical and impracticable, and he, therefore, for want of encouragement, abandoned the enterprise,

Attempts had been made to benumb the nerves of sensation, previous to the time of Papin, but, with the exception of certain traditions as regards the use in the East of the Mandrake, (*Mandragora*) and of the Hashish, (*Cannabis sativa*) made from Indian Hemp, (*Indica*) the tops and leaves of which are boiled in butter and water, until the water is evaporated and the remaining substance, after straining and being ready for use, we have no evidence that anæsthetic inhalations were ever known or ever practiced in surgery until within a few years.

In 1795, Dr. R. Richard Pearsons recommended the inhalation of Sulphuric Ether as a remedy for Asthma and other diseases, and an instrument for its administration was accordingly invented by Dr. Nystem, in 1816.

In 1800, in his researches respecting Nitrous Oxide Gas, Sir Humphrey Davy remarked, "As Nitrous Oxide in its extensive operation, seems capable of destroying physical pain, it will probably be used with advantage in surgical operations in which no great effusion of blood takes place."

Anæsthesia is of two kinds, viz: general and local, general is when the subject operated upon is rendered entirely unconscious; local, when some particular portion of the body is made insensible to feeling.

Local anæsthesia has been attempted by various methods, such as long continued pressure on the trunk leading to the parts upon which the operation is to be performed, the application of various gases, (especially Chloroform and Sulphuric ether), by a true freezing process, which may be performed by the application of pounded ice and salt, contained

in a sack of linen or membrane and by either spray. These attempts have not generally been satisfactory, as it has been found impossible to reduce the temperature of the parts to such a low degree as to prevent pain.

As has been already stated, a substance which would produce anæsthesia had long been desired, yet the discovery and appliance of the great allayer of pain was reserved to modern times. I have said that, for mitigating the pain attending ordinary diseases. Sulphuric ether had more or less been administered for three-quarters of a century, but the putting of an individual into a state of unconsciousness, or transporting him to the land of beautiful dreams, was not done until the year 1846.

This wonderful achievement was accomplished in Boston, by Dr. W. T. G. Morton, whose mind had long been exercised in ascertaining and determining the most expedient method whereby his patients might not know how or when their aching or decayed teeth lost their fast hold on the mouth and were hurled where they could neither torment or offend.

Dr. Morton claimed to be the discoverer of the property which ether possesses of causing insensibility to pain when administered to those undergoing surgical operations.

This claim was contested by Dr. Charles T. Jackson and by Dr. Horace Wells, of Hartford, Conn., the latter being a dentist. The controversy was protracted and bitter, but one thing is certain, the discovery was made by one of the trio. Two of the three were dentists and thus, if our profession has accomplished nothing more for the benefit mankind, it will always occupy a high and renowned position amongst the other professions, because of its connection with this great discovery.

The discovery of Chloroform was made simultaneously in the year 1831, by Samuel Gurther of Sackett's Harbor, N.Y., M. Somberani, of France, and Prof. Liebere of Germany.

The discovery of the anæsthetic property of Nitrous Oxide Gas was made in 1844, by Dr. Horace Wells, of Hartford, a dentist, while witnessing a public exhibition of its exhilara

ting effects. Not being sufficiently familiar with its nature, he did not succeed in his efforts to introduce it for the alleviation of pain. Therefore, it was soon forgotten and very little more was heard of it until 1863, when the matter was again investigated and successful experiments made which resulted in its introduction as an anæsthetic which has attained the reputation of being the safest of any now in use.

This gas is generated for anæsthetic purposes from the nitrate of ammonia by the application of sufficient heat to volatilize it. Care should be taken, however, not to apply the heat in excess, for then will be found Nitric Oxide, which gas is a poison. Too great heat would also force the gas through the wash bottles at such a rate of speed as to prevent the complete absorption of the impurities it contains.

Great care should be exercised in the preparation of this gas. It should never be intrusted to novices. My method of manufacture requires four jars—one containing a solution of protosulphate of iron; another, a solution of caustic potash, the other two water. As before observed, the nitrate of ammonia must be heated to a correct temperature, when will be obtained Nitrous Oxide in purity. It is important that the gas should be allowed to remain over water from three to six hours, in order that the impurities, which may remain in the gas after washing, may have sufficient time in which to be absorbed. Thus the gas will be more pleasant to the taste and more powerful as an anæsthetic.

Nitrous Oxide may be condensed into a liquid.

It was first exhibited in this form at Paris; by Dr. Evans. It is usually contained in a strong metallic cylinder to which is attached, by a tube, a rubber sack or bag to which the gas is admitted by turning a stop-cock, and the gas is administered as in the times when first introduced.

The present, and decidedly the best mode of administering the gas is to receive it through a tube to which is attached a mouth piece, constructed for the purpose, direct from the gas holder.

Anæsthesia may be produced by a variety of substances. Among these may be mentioned acetic, nitric, and sulphuric

ether, protoxide of nitrogen or laughing gas, (Nitrous Oxide) chloroform, common illuminating or coal gas, naphtha, carburetted hydrogen, benzole or benzine, amélque, and Dutch liquid. Of these, preference has been given to Sulphuric ether, Chloroform, and Nitrous Oxide gas, both, as regards safety and efficiency. It is well to know which is the safest and at the same time the best for the purposes of the dentist. This knowledge can only be obtained by experiments.

Experiments thus far have very largely proved adverse to the use of Chloroform. To show the relative merits of these substances I shall now proceed to detail the result of some experiments which I have made, and submit testimony.

In the month of February, 1870, I placed a cat in a glass receiver and subjected it to the influence of Chloroform. In one minute and three-quarters the animal became insensible, and in three minutes respiration ceased.

In another instance, the subject being a cat and the anæsthetic used being the same as in the preceding example, the animal was rendered insensible in one minute and one-half, and on being removed could walk in ten minutes and a half.

On the first day of March, 1871, I administered Sulphuric ether in the same way as in the previous cases, to a cat, which became unconscious in four minutes. At the expiration of five minutes the heart had ceased to beat.

On the same day I administered Nitrous Oxide to a cat, in seven minutes it was unable to stand and at the expiration of ten minutes was removed from the jar. In five minutes after removal, the animal could walk and in twenty minutes its whole appearance was natural, there being nothing to indicate that it had been out of its ordinary condition.

The following day, Nitrous Oxide was administered to a cat, the animal being unconscious fourteen minutes. In six minutes after its removal consciousness returned. This experiment was witnessed by Dr. C. G. Davis, of New Bedford, Mass.

On the fourth of March, 1871, I administered Nitrous Oxide to a cat, in the presence of Prof. Rufus King Brown, of

the Boston Dental College. The animal became insensible in two minutes and a half. Consciousness returned in eight minutes.

The same day placed a cat under the influence of Nitrous Oxide. In four minutes it was rendered insensible and one minute after being removed became conscious. On the 9th of March, 1872, subjected a cat to the influence of Nitrous Oxide, the animal being in an insensible condition *sixty-two minutes*. The Nitrous Oxide was renewed four times in this experiment, the Carbonic Acid gas being allowed to escape at each renewal. The same cat was subsequently under the influence of the Nitrous Oxide *twenty-six minutes without renewal*, at the Boston Dental College.

March 27th, 1870, at the Dental Institute, a young cat rendered insensible by the agency of Nitrous Oxide, and remained in that condition *sixty-one minutes*, and in two minutes after was bright and playful. At about the same date, the gas administered to a cat which was kept in an insensible state thirty-five minutes without renewal of the anæsthetic. In five minutes more, respiration ceased. Death was probably caused by the inhalation of the Carbonic Acid gas and was not the result of any deleterious effects of the Nitrous Oxide. On the eighth of April, 1869, Nitrous Oxide was the anæsthetic used by the eminent physiologist, Rufus King Brown, M. D., in establishing a pancreatic fistula, the subject being a dog. The animal was subjected to the influence of the gas fifty-eight minutes.

In September, 1871, I administered benzole or benzine to a cat, insensibility was produced in three minutes and a half. After the removal of the anæsthetic, consciousness returned in ten minutes.

In a case of the administration of Nitrous Oxide to a cat, in the following December, death ensued at the expiration of eighteen minutes. The cat, as subsequent examination showed, was not in a healthy condition, the lungs being entirely out of the normal state, I am quite satisfied that, even at the eighteenth minute, the animal might have been resuscitated, but it being my original intention to cause the animal's

death, I did not make the attempt. In the case of a cat, where the Chloroform had been recently administered in a glass receiver, the animal died in three minutes, I immediately made an incision in the thoracic cavity and found both lungs congested, and the air cells nearly all closed, which shows the great danger of destroying life in the use of such a powerful anæsthetic.

In the "Medical and Surgical Reports of February," 1866, Prof. Carnochan writes, "I have performed, within a time, four more capital operations on adults, one amputation of the thigh, one of the leg, the removal of a tumor from the side, and the extraction of a cataract, making in all, since last July, seven successful capital operations under the influence of anæsthesia produced by Nitrous Oxide gas, I have during the same time used chloroform and ether in my operations, and my opinion in regard to the superiority of Nitrous Oxide remains unchanged."

Mr. W. H. Jackson, a dental student at Quebec, testifies that in the month of June, 1868, he witnessed a long and painful operation which lasted forty minutes. It was the amputation of a foot, gangrened from a very severe frost-bite. The operation was performed at the Marine Hospital, of Quebec, and was attended by the greatest success, the patient being under the influence of Nitrous Oxide and remaining unconscious until it was finished.

The same gentleman also witnessed another operation in which the same anæsthetic agent was employed, and was as in the other, a success, the case being the amputation of the thigh of a woman.

Franklin R. Thomas, D. D. S., in a communication to the "Dental Times," of Philadelphia, remarks, "Having practically demonstrated with about eleven thousand persons under the influence of Nitrous Oxide, and those having been administered indiscriminately as they presented themselves, and not in a single instance, as far as known, has any one sustained any ill effect from its inhalation, though many of them were known to have been suffering from chronic and organic diseases of different kinds.

In nearly 4000 cases where I have administered the gas, I have seen no bad effects, and I have taken pains to ascertain that it has been given more than 250,000 times with great success.

There are in its use but two cases of death on record, (and it is not generally believed that either of these was caused by the inhalation of the gas, but from some attendant circumstance), and I think enough has been said of the beneficial effects of Nitrous Oxide to convince almost any one of the appropriateness and safety of its use as an anæsthetic.

In cases of prolonged operations, the inhaler should every few moments be removed, in order that the lungs may become filled with atmospheric air, which being done, the gas may again be administered without the patient returning to consciousness.

I am aware that many practitioners take exception here and consider any suspension of the inhalation of the gas for the purpose of respiration a decided injury to its anæsthetic effect.

And now, in conclusion, it may not be inappropriate to say something concerning the proper mode of feeling the pulse, while administering anæsthetics.

During the administration of Ether and Chloroform, especially, the pulse should be closely watched by yourself or competent assistant, and any deviation from its normal condition should be followed with the greatest care.

No attempt should be made to examine the pulse until the patient becomes composed. The examination should be thoroughly made, and any fluttering or abnormal indications carefully noted. To do this, place three of the fingers upon the artery which passes along the inner side of the left wrist of the patient, having the thumb so applied to the back of the wrist that the pressure which is applied to the artery may be increased or modified to any extent, so that by the degree of pressure, may be ascertained the number of beats in each minute and the nature, also, of each beat. The pulsations may be varied, as for instance, very distinct, sudden, abrupt, intermittent, convulsive, a rapid thrill, rather to be denom-


inated a vibration than a pulsation, the bound so strong as apparently to force the fingers away, or a cessation of pulsation.

Slow pulse indicates that the patient is not in a state of health.

A sluggish pulse is expressive of languor. The unequal or changeable pulse is a distinctive feature of a nervous temperament, accompanying deficient vital energy, it also indicates spasm of the heart and sometimes inflammation of the lungs and is a very serious symptom.

Intermittent pulse should be closely watched. It may be interesting to the practitioners of dental surgery to all indeed to whom it is not familiar to say something concerning the resuscitation of those who may become asphyxiated while having administered to them an anæsthetic.

In such cases, the first thing to be done, is to draw the tongue of the patient out half its length and *retain it in that position* while artificial respiration is being carried on, which is best performed by moving the arms and shoulders backward and forward, thereby expanding and contracting the respiratory apparatus and so induce natural respiration. And now, in conclusion, allow me to express the hope that all will unite in the belief that the discovery whereby anæsthetics have been applied for the alleviation of pain, when necessity demands the performance of the severest surgical operations, is an unspeakable blessing, it has gone forth to cheer and gladden humanity, but when administered, it should be done watchfully, carefully and judiciously.



INTRODUCTORY LECTURE BEFORE THE CLASS IN THE OHIO DENTAL COLLEGE, OCT. 15, 1874.

BY J. S. CASSIDAY, D. D. S., PROFESSOR OF CHEMISTRY.

Gentlemen:—I do not think it altogether the proper thing for me to impose on you a lesson on this the occasion of our first meeting, but as preliminary to our regular course of lectures, I propose to occupy a portion of our hour to-day with a few informal remarks on the status of chemical knowledge in the past.

In order to appreciate the history of chemistry *as a science*,* we do not have to seek amid the dim, almost unlettered pages of the distant past.

The first authentic evidence of investigations into the nature of matter, appears to the credit of the Egyptians; and one of them, named Trismegistus, is represented as the father of alchemy. He labored, as all subsequent alchemists did, in the vain effort of discovering a process for converting baser substances into gold and silver, and of eliminating from some mysterious mixture, the elixir of life, the liquid that would, by a simple taste, restore to the aged, tottering, weak, and withered man, his lost youth, strength, elasticity, and beauty. Such was the object of what is known as alchemy—and the most we can say of its followers derogatory to their honored memory—is that they were alas! victims of misplaced confidence.

The alchemy of the Arabs came later, and was far more practical and useful than that of the Egyptians. *Their* dream also was Transmutation, but in their blind gropings after the impossible they discovered many valuable compounds and methods of investigation. They had their pestles and mortars, crucibles and furnaces, alembics and aludels; they had

* The ancients were, no doubt, familiar with a vast amount of useful facts pertaining to the domain of material nature, but those facts were a mere heterogeneous collection, compared to the definitely arranged scientific truths of to-day.

vessels for infusion, decoction, sublimation, filtration, coagulation, etc. They worked with gold, silver, mercury, arsenic and sulphur; salts and acids, and indeed became acquainted with a large number of bodies, now called chemicals. They prepared salammoniac by heating camel's dung. They taught that there were but three elemental substances, mercury, sulphur and arsenic, and these, especially the first two, seemed to attract their exclusive and enthusiastic attention. They considered the metals as compounds made up of mercury and sulphur, united in different proportions. They saw mercury dissolve gold—the most incorruptible of bodies, as water dissolves sugar, and a piece of sulphur presented to red hot iron, penetrates it like a spirit and makes it run down like a shower of solid drops, a new and remarkable substance, possessed of properties belonging to neither iron or sulphur. One of their number named Geber, wrote a book on the subject, and called it "The Summit of Perfection." It is the oldest known book on chemistry, and although full of ridiculous nonsense, it is truly a wonderful performance.

From the Arabs, alchemy found its way through Spain into Europe, and soon became entangled with the fantastic mysticisms of the scholastic philosophy then in existence. The earliest works on alchemy are those of Roger Bacon and Albertus Magnus. Both of whom flourished contemporaneously, in the thirteenth century. Bacon was acquainted with the properties of a mixture now known as gunpowder, and although he condemned magic, necromancy, charms and such things, he firmly believed in the convertibility of the inferior metals into gold. He had more faith however, in the so-called Elixir of Life, than in gold producing. He followed the Arabian, Geber, in regarding the solution of gold in aqua regia as the true elixir, and cites a supposed case of an old man, who, plowing one day in Italy, found some yellow liquid in a golden vial, and thinking it was dew, he drank it off, and was immediately transformed into a strong and highly accomplished youth.

Albertus Magnus, in addition to the mercury and sulphur theory of the metals of the Arabians, regarded water as

much nearer the soul of nature than either of those bodies. He appears indeed to have thought it the primary source of all things.

Thomas Aquinas was the first to use the word amalgam, and Raymond Lully the first to introduce the use of chemical symbols, his system consisting of a scheme of arbitrary hieroglyphics. Basil Valentine was the first to use antimony as a medicine. He regarded mercury and sulphur and common salt, as the three bodies contained in the metals. He inferred that the philosopher's stone must be a compound of the same substances, so pure that its projection on the baser metals, should be able to work them up into a condition of greater and greater purity, bringing them at last, to the desired purity of silver and gold. His practical knowledge however, was very extended. He knew how to precipitate iron from solution by potash, and many other similar processes, so that he is regarded as the founder of analytical chemistry.

But perhaps the most famous of all the names in the annals of alchemy, is that of Paracelsus. He agreed with Valentine that the elements of compound bodies were salt, sulphur, and mercury. All kinds of matter were, he thought, reducible under one or other of these typical forms. Everything was either a salt, a sulphur, or a mercury, or, like the metals, a compound of these. There was one element, however, common to the four; a fifth essence, or quintessence of creation; an unknown and only true element of which the four generic principles, namely salt, sulphur, mercury and the metals, were nothing but derivative forms; in other words, he taught that there is only *one* real elementary matter—no body knows what. This one prime element of things, he considered to be the universal solvent, of which the alchemists were in search.

After Paracelsus, the alchemists of Europe, became divided into two classes; one class was composed of sensible men, practical workers and observers of facts. The other class took up the visionary fantastic side of the older alchemy and carried it to a degree of absurdity before unknown.

The seven metals correspond with the seven planets, the seven openings of the head, the eyes, the ears, the nostrils, and the mouth. Gold was Apollo, silver was Diana, iron was Mars, tin was Jupiter, lead was Saturn, and so on. They talk incessantly of the power of attraction, which drew all men and women after the fortunate possessor; (and let me here venture to remark in all seriousness that there is a considerable number of people in these enlightened states and cities of America who have a notion that there is a substance of some kind, which confers upon the possessor an irresistible power of attraction, and that the doctors know all about it). They talked of the *Alcahest*, the spirit of matter, and of the grand elixir which was to give an immortality of youth to the student, who should approve himself pure and bold enough to kiss and quaff the golden draught. There was the great "mystery" the mother of the elements and the grandmother of the stars. It was in connection with this mock alchemy, mixed up with astrology and magic, that barefaced quackery abounded, and indeed it is so to a not inconsiderable extent at the present time.

It is from this degenerate class of visionaries and imposters that the prevailing idea of alchemy is derived, an unjust aspersion upon the character of the really meritorious alchemists who paved the way for the advancement of genuine chemistry. Many of them were too intelligent and practical, to waste their time and substance in dreaming of the golden terrestrial immortality, to be found only in the mythical "Philosopher's Stone." Away back in the distant ages of Egyptian civilization, we find evidences of a most wonderful knowledge of chemical reactions and processes for preserving dead bodies from decay, which no modern chemistry could excel. They prepared medicines and pigments, metals and metallic alloys, soap and beer, and vinegar, and common salt, soda and sal ammoniac, glass, enamel, tiles and painted earthenware; and even the Chinese long ages ago were acquainted with the preparations of sulphur, nitre, borax, alum, verdigris; porcelain, paper and gunpowder. But they and their successors of all the nations groped in the

midst of the tantalizing wealth of nature's laboratory during many hundred dreary years. The rest of them were merely artistic and scientific.

The first evidence of a real science of chemistry, appeared after the discovery by Brandt in the latter half of the seventeenth century, of the weirdlike luminous body called phosphorus. He had worked many weary days and nights, with the hope of obtaining, from disgustingly concentrated urine, a solvent which would change silver into gold, when to his astonishment he saw a residuum in his retorts, of a waxy nature, which burst into flame by subjection to the slightest warmth.

This discovery of a hitherto unknown element, although purely accidental and cherished as a costly secret for many years, appears to me to mark the beginning of modern chemistry, especially when taken in connection with the fact that soon afterward, Sylvius, and Thomas Willis, and Boerhaav established an important school of medicine founded mainly upon chemistry and mechanics.

To the more positive thinkers, however, as Lavoisier, Priestly, Schul, Galvani, Volta, Sir Humphrey Davy, Faraday, Berzelius and other names, of almost equal brilliancy, chemistry owes its rapid exaltation into a science.

It is claimed, perhaps justly too, that the discovery of oxygen by Priestly one hundred years ago, marks the birth of scientific chemistry, and therefore its centennial birth-day has been celebrated in different lands in this year of grace 1874, with a noble pride in the object and subject, and an enthusiastic fervor worthy of the cause.

I have, gentlemen, thus sketched, briefly as possible, an imperfect outline of the origin and progress of our favorite science. I have, for obvious reasons, purposely avoided any allusion to the various complicated theories promulgated at different times. And neither have I referred to the present status of chemistry for the good reason that it would be impossible to do justice to the immensity of the subject. It is indeed as illimitable as the universe itself, and he who would

even approximate a mastery of its practical philosophy must spend in its study a lifetime of labor and love.

COMMENTS ON THE RECENT ADDRESS OF DR.
W. W. ALLPORT BEFORE THE ACADEMY OF
DENTAL SCIENCE, BOSTON, MASS.

BY J. RICHARDSON, TERRE HAUTE, IND.

We have been interested in the perusal of the above address, partly because it is from the pen of a well-known and accomplished practitioner whose views generally command attention, but chiefly because it affords a convenient text for the consideration of a question which has not been heretofore extensively discussed, namely, the status of our profession in its relations to medical science.

The attentive reader of this address will not fail to notice that the scheme of separating mechanical from medical, surgical, and operative practice, has its birth in an unsatisfied and over-weening ambition to ultimately secure from the medical faculty a full and unqualified recognition of our calling as a medical specialty. All this talk about the divorcement of these departments of dental practice is intended but as a means to this end,—a tub thrown to the whale,—a sort of propitiatory or sacrificial offering up of the professional rabble to secure a prospective and everlasting inheritance of glory for the elect few. Indeed, we are left in no doubt about this ulterior purpose. The doctor explicitly says:

“With the development of this higher mission of our profession there will be no occasion for the spectacle of dentology, with the grimace and shuffle of the mendicant, approaching the

gates of the medical profession, and with downcast eyes begging a crumb of recognition. But with the accomplished separation of the two callings, heretofore combined in our practice, dentology, enriched by the experience of the special literature of the last half century, and the foundation of its practice laid exclusively in the science of medicine, rather than divided between that and a trade, the incongruity of the past will, in a few years, disappear, and by deriving its nourishment from the body of which it is a branch, it will become more, and still more assimilated to the science and practice of medicine, and without demand, there will, both by the public and the medical faculty, be accorded, not to individual practitioners, but to the branch a full and cordial recognition as a specialty in medicine."

Thus, in imitation of the professional beggar, who, failing by other means to excite compassion and alms-giving, resorts to self-mutilation, the author of the address before us coolly proposes that the dental profession, which, by implication, he charges with presenting the spectacle of a mendicant at the door of the medical profession beseeching in vain for a crumb of recognition, shall now, as a forlorn hope, be thrust forward in all its self-imposed rags and shameless pretense of poverty in the superadded role of cripple. The doctor fairly chuckles over the shrewdness of this device, and rubs his hands together with unctious satisfaction in contemplation of the mollifying effect this unsightly deformity will have when added to the "grimace and shuffle" of his pet mendicant.

But, unfortunately for the author's designs, the plain fact is that he totally misapprehends the grounds on which the medical profession withholds recognition of our calling as a medical specialty. It makes no such demand as that implied by Dr. Allport. If his project of dismemberment were an accomplished fact to-day, he would not be so much as the breadth of a hair nearer the realization of his ambitious dream. Could he lop off at pleasure every branch of special practice having the slightest taint of mechanism about it,—the construction of artificial sets of teeth, obturators, appliances for dental irregularities, contrivances for fractures, the operation

of filling teeth, the improvising of needed instruments and appliances for special or anomalous purposes, and so on, until the atmosphere of his office should become so purified that his professional olfactories should be no longer offended by the vile odors from the shop, but delight rather in the subtle and delicate aroma arising like grateful incense from pure and undefiled medical science, yet would he, despite all this trimming, and all his vaulting aspirations for higher medical culture, be still found waiting with "downcast eyes" in the attitude of a suppliant at the threshold of the medical profession with the same chances as now of being uncereemoniously booted from the premises.

Dentistry, construed according to the standard of requirements prescribed by the medical profession from time immemorial in respect to other departments of the healing art, can not be regarded as, in any proper sense, a medical specialty. Nor, we venture to affirm, will it ever be so accepted without a virtual abandonment of its distinctive organization as a professional body. The restless and unsatisfied spirits who are continually possessed with the mania for recognition will do well to accept the decision of the medical profession on this point as authoritatively enunciated lately by the editor of the Philadelphia Medical Times when he declares that, "If dentistry in the abstract is worthy of a position as a medical specialty, the living concrete dentistry can only gain such honor by a complete reorganization of the profession." Commenting upon the aids which the profession has derived from dental colleges, he remarks: "They (dental colleges) are an insuperable bar to its (the profession) ever becoming a medical specialty, and the degree of D. D. S. is a badge of partial culture which must shut out from the medical ranks every one who wears no other insignia. * * * * So long as the dental profession by their deeds say, that such half culture is all that is necessary for a dentist, why should the members complain if the world and the *Times* agree with them and assign to dentistry the position which it at present holds." And again: "There is only one way by which a higher position can be achieved, and the first step is the abolition of the

dental colleges and an enforcement of the idea that a general medical education must precede the special one."

Reorganization then is the condition precedent of recognition, and not the puerile and deodorizing expedient dished up for us by Dr. Allport. If, in order to pass the sacred portals of the Æsculapian temple, we must needs suffer amputation of some objectionable part of the body professional, it is imperatively demanded that we shall offer the head rather than the extremities to the medical guillotine.

When we come to reflect how little identity there is between the dental profession and the recognized medical specialties, we shall feel less chagrined at the declaration of the *Times* editor that "the claim that dentistry is a branch or specialty of medicine is generally met by internal cachinations, whatever external behavior the laws of politeness enforce."

In what respects then does dentistry differ from the avowed medical specialties?

1. A medical specialty proper, being the study and practice of a special department of general medicine, always presupposes an antecedent acquaintance with all the various branches of medical science. It is indeed but a creature, a product so to speak, of medical science, and unrecognizable by any other relationship. This requirement of a general medical education therefore implies *whole* medical culture.

Now it is not claimed that any such general medical education is necessary in the case of the dental profession. The course of medical studies embraced in the curriculum of our dental colleges, and which may be taken as an expression of the highest medical attainment in our calling, does not by any means include every branch of the medical sciences, and therefore implies only *partial* medical culture.

In this view of the case, the lack of identity between dentistry and the medical specialties proper is apparent. It may be farther confirmed by an interpretation of the medical and dental degree. M. D. is the specialist's badge of medical culture, and signifying Doctor in Medicine, implies wholeness, or completeness. D. D. S. is the dentist's badge of medical culture, and signifying Doctor in Dental Surgery, which is but a

department of medicine, it plainly implies only something partial or fragmentary.

2. We style ourselves a *profession*. It is quite the fashion amongst us to boast of this, and there are none so tenacious of this characterization as those who clamor for recognition as a medical *specialty*. Now a profession, as designating any particular calling or avocation in life, implies unity, oneness, wholeness, completeness. Thus, amongst others, we have the medical and legal professions. Each of these has a distinctive educational system suitable to its organic structure, and commensurate with the requirements of all the multiform details of its peculiar work. However many special departments may grow up within the body of these organizations to meet the exigencies of practice, still the idea of unity or wholeness must always attach to them in their aggregated character of a profession. Dentistry is properly enough classified as a profession, having within itself all the necessary educational machinery to render the study and practice of all its departments complete. In the completeness and unity of its organic structure it is identical with the other professions mentioned. Here then is another point of departure in which identity is completely lost. By what process of legerdemain or hocus-focus can it be a profession and a specialty at one and the same time? It would be very like a father claiming to be his own son, or a son his own father. If dentistry is properly a profession, it cannot also be a specialty, for one implies a whole and the other a part, and these plainly are not co-equal or identical except on the illogical assumption that the whole is equal to a part, or a part equal to the whole. If dentistry is a profession it can not be a specialty, for the whole can not be equal to a part, and if it is a specialty it can not be a profession, for a part can not be equal to the whole.

Surgery and ophthalmology are specialties in medicine, but who ever heard of the surgical and ophthalmological professions? In the legal profession the study and practice of commercial law is recognized as a legal specialty, but has it ever entered into the head of any one to designate this special practice as a profession? Operative and mechanical practice

are regarded as specialties in dentistry, but no one has ever characterized them as professions.

Viewing the subject in this light, it seems incredible that any one of average intelligence should indulge the expectation that dentistry can ever become recognized as a specialty in medicine and yet retain its distinctive character of a profession. The proposition is not only absurd but presumptuous. If any one of the now recognized medical specialties were to take on such airs, it would be summarily ejected from the medical profession.

3. But perhaps the most conclusive reason why dentistry can not be recognized as belonging to the family of medical specialties is because there is no blood relationship. Recognition is the birth-right of the avowed medical specialties, for they are legitimate offspring begotten within the body of the medical profession, and unchallenged heirs to all the rights, dignities, and immunities conferred by the doctorate in medicine. But dentistry is a body wholly alien to the medical profession by reason of its extraneous origin. It was born, so to speak, outside of wedlock, and is therefore barred from all rights of inheritance. It never had any acknowledged parentage, and is not even positively known to have been born at all, but, like Topsy, it probably "just grow'd." It is properly therefore "nobody's child." But it has thrived wonderfully nevertheless through all the period of its growth and development, counting from the time when it was, in some mysterious manner "ushered into this breathing world but half made up, and that so lame and unfashionable that the very dogs barked at it" to the present, when it may fairly challenge the admiration of mankind for its marvelous comeliness of form and feature. And this is the symmetrically-built, well-favored, self-assuming, "child of fortune" whose fair proportions our distinguished friend proposes to mar for a consideration somewhat less substantial than a "mess of pottage."

But our medical friends will not compound on such terms. They are inexorable in their demand, that we *shall be born again*, which means that, as a distinctive profession, we shall first suffer disorganization and death, and then become reor-

ganized and legitimatized within the body of the medical profession by the usual processes of conception, utero-gestation and accouchement.

To this complexion must it come at last, if we are to be counted in as a medical specialty. Who in our profession are willing to abandon our present organization for the doubtful honor of being tacked on as a fragmentary part of the medical profession and dubbed medical specialists. If there are any such, let them speak and they shall have a respectful hearing. But until we are prepared for such a step, let us be spared all this twaddle about the recognition of our calling as a medical specialty.

It was no part of our original purpose to discuss in this article the scheme of separating the mechanical from the other departments of dental practice proposed by Dr. Allport. It certainly is sufficiently vulnerable to invite criticism, and we may address ourself to that particular feature of his address at another time.

MECHANICAL APPLIANCES IN OPERATIVE DENTISTRY.

BY DR. M. N. CHAPPELL.

Read before the Indiana State Dental Society, June, 1874.

Gentlemen: The duty assigned me to introduce the subject of "Mechanical Appliances in Operative Dentistry," gives me pleasure to present favorable pleadings for the same.

Appliances have their associates or assistants. I therefore to some extent place them in classes, beginning with the rubber

dam, assisted by the clamps, waxed silk, guilling twine, holders, weights, punches and wedges.

I use the dam in every case of filling, preparation of the cavities, or in treating pulps. The medium rubber is preferable for all purposes. Before applying the dam, I examine and cleanse the crowns which I wish to cover, unless there be deposits of calculi that will assist in retaining the dam. If the teeth are crowded, pass a waxed twine between them if possible, or if too close to admit the thread or twine, I apply the separators or wedge, until there is room sufficient to admit the twine and rubber. There are cases that the passing of the rubber between the teeth is unnecessary, which I will explain in time. For the front teeth small holes cut with the punch on the end of box wood block, sixteenth to quarter inch apart. Stretch the rubber over the tooth, or teeth, with the edges turned under the margin of the gum, long wedges of orange or other hard wood facilitates the forcing of the rubber between the teeth, also the twine firmly grasped carries the dam to its place, if necessary, with a well waxed twine tie the same down the neck of the tooth, as far as it will go, leave the strings long to fasten to the holder, if in the upper teeth, or if in the lower teeth, to fasten the weights to, if desired. This management of the surplus twine prevents the apron holder from changing the dam to let in moisture, be careful that the holder does not draw to tight. Seldom will the clamps be needed on cuspids or incisors, occasionally we use them on bicuspid.

For molars cut a larger hole than for other teeth. Place the jaws of the clamp through the rubber, adjust the clamp forceps, folding the apron over the forceps so you can see the jaws of the clamp, place the same on the tooth, remove the forcep and with a burnisher raise the rubber over the jaws. It adjusts itself to the neck on buccal or lingual surface, if you wish to operate in crown cavities only, this will be sufficient; without passing down between the teeth, as the dam is complete, if necessary or convenient, force the rubber between them as in front teeth, and tie the same.

I adjust the dam on molars in nearly every case in this way. If in operating in approximal cavities, place the clamp as before on the posterior tooth I wish exposed, if the anterior tooth should be crowded, then with a small wire clamp adjusted in the forceps, place the points in the hole for the tooth, bring forward and place the clamp between the teeth. It holds the rubber so you can with wedge and twine complete the dam. You are now ready to shape the cavity. Make critical examinations and thorough operations which cannot be done without the tooth is absolutely dry. The clamps on the molars cannot be dispensed with since their use and application is so well understood, and the dam a universal success.

The burring engine, with its various attachments—burs, drills, corundum discs and points, Arkansas, Hindoostan, and Scotch stone, leather, turned wood discs and points, burnishers and buffers, for each and every case a variety is required. The corundum discs have taken the place of the file to a great extent; more rapidly is the work done, and with better results. The small thin wheel points I use in opening and finishing fissures and beveling the edges of cavities. In case the fissure is deep the bur will have to be used, the small round one is in greatest demand completing the work in the fissures, cutting canals, or under cuts to secure the filling, also rounding out all acute angles, beveling the edge of retaining pits which are cut with the diamond point drill. After the filling in crown or compound cavities is condensed, all parts full, the corundum discs, wheels and cones, cut down to a surface more rapidly than the finishing burs or files, complete the finish with fine stones, wooden points, burnisher and buffer with rouge.

Superficial decay I cut away with corundum and finish with fine stones, wood discs or points with pumice. In green stain I use the wood points and pumice, unless it approaches superficial decay, then I treat it as such.

Great care is required in using burs, discs, etc., to not allow the point to "jump" and come in contact with the dam or mouth. In small approximal cavities, or fillings, where you gain access by wedging, the engine cannot be used to that ex-

tent as is required where the caries is deep seated and portions of tooth gone.

The napkin is not dispensed with since the use of the rubber dam has become so general, but welcome in nearly every case we have, to lay over the nose or mouth of the patient to prevent the inhaling of their breath, in holding away the lips, in forming a partial dam, in examinations or excavations before applying the rubber dam, also folded to lay under the rubber over the chin or across the mouth, it absorbs the saliva, keeps the chin dry and renders some degree of comfort to the patient, renew often if necessary when the saliva flows freely.

Wedges of hickory, orange, or other hard wood, become necessary, when the teeth are too close for adjusting the rubber dam, removing decay and filling and finishing the same is required. Quick wedging I believe to be the best, start two or more one at the point, one at the neck of the tooth and one mid-way, give time for the membrane and tissues to give way, employing the time on teeth that require no wedging; remove all but the lower wedge, when there is space sufficient to work in finishing the filling over the edge of the cavity and leaving the same convex, the natural shape of the tooth; you might break into the cavity, with chisel or file, prepare it so it would retain a filling for the time being without wedging, but as so much depends on the finish of a filling for the subsequent preservation of the tooth; the space is necessary and must be made, and wedging is the best means to be employed. I have used the Jarvis separators for several weeks, They are intended to take the place of the wooden wedge, are to be used in localities where wedging is nearly impossible. In some cases they work well; I am not prepared to praise or condemn them. I have been using a strong wire clamp resembling the shape of a horse shoe, placed between the teeth, the spring force in many cases causes sufficient space between the molars, or other teeth to admit the twine and dam, or the holding wedge at the gum, when I find space sufficient remove the clamp and proceed.

I continue the use of the mallet, and mallet pluggers, of my own design, believing that I do much better work since learn-

ing to point and polish my instruments, keeping them in good order, the serrations are ten points to the sixteenth of an inch—lineal. When the serrations are coarser, deep and sharp, the cohesive surface is very imperfect, the gold crystals are cut or broken and the foil "balls up," and disappointment will be the rule. The welding is difficult, the filling weak by interstices, the margins imperfect, and in many cases the walls damaged by the points, this trouble is obviated by fine serrations and where the force is direct, finer serrations are still preferable, the serrations act as steps to retain or support the crystals in receiving the force and this principle must be recognized all the way in making a compact and thorough filling. My favorite patterns are foot shape, with distinct heels at angles from ten to thirty degrees also of double heels at right angles, curved at shank rights and lefts foot shape, and one concave from heel to toe, fluted serrations lengthwise. This instrument I use for condensing the last layers over convex surfaces, a small double curve straight point for filling retaining pits. With these I can fill all the cavities in any tooth, including the posterior molar distal surface.

The mallet, of lead with rubber covering, seven oz. weight, with foil carrier attached to the handle near the mallet. I do my own feeding and malleting in most cases, I think it can be done better and time saved, controlling the instrument with the left hand, and feeding and malleting with the right hand.

The gold screws for securing fillings are used where the strain on the retaining points of the filling will be great, such as building down abraded crowns, and in many cases of compound fillings. I use them as posts set in any surface of the crowns of teeth, in correcting irregularities, either to attach ligatures, rubber bands, etc. When their use as posts is not required any longer, cut them off and polish or take out and fill with foil. Many cases of setting crowns on roots instead of using the old style wooden pivot teeth, use plain plate teeth, root capped and long screws extending through, and allowing the plate to be attached by the screws continue welding the gold capping over the margins of plate, uniting with the screws. Finish up the palatine surface, shape of natural tooth,

welding then the labial joint completing a substantial as well as beautiful operation. In some cases the clamps or twine will not retain the rubber dam on a tooth, owing to the shape of the crown or locality of cavity, by setting a screw in the locality desired, the clamp remains firm, lodging beneath the screw securely. When the filling is complete, cut off the screw and polish down.

The Lawrence file carrier fills a very important place in holding short pieces of files at any angle desired in dressing approximal cavities or fillings in molars, holding small wedges for adjusting the dam, also pieces of corundum or wood in dressing teeth in the back part of the mouth or a lingual surface of lower front teeth. Excavators in the shape of spoons, long shank, double edge, hoes and hatchets with oval points are the best. Having them oval at point, in excavating the liability of injuring the pulp is less than if the cutting edges are square also we avoid sharp angles which in many cases the wedge force of an acute angle checks the dentine or enamel by the same principle as cutting glass with the diamond.

Spongoid, a preparation of lint, is the best material I have ever used in drying cavities, dressing pulps, etc., it is pure, neat, and convenient.

There are many details that I might indulge in, but believing this to be an advanced era in operative dentistry, and that each of you are endeavoring to know for himself the benefits derived from having a supply of the improved instruments and appliances and possess them.

You will pardon me for occupying so much of your valuable time, hoping what I have said will cause every member to give his experience with the different appliances.

I believe the services of the dental surgeon are now more fully appreciated by the people, and the success in saving teeth is greatly due to the improvements of which I have spoken, and the professional reputation of the operator is due to his application, and skillful training in the use of "Mechanical Appliances in Operative Dentistry."

Correspondence,

DR. TAFT:

My Dear Sir, Your letter asking for my experience in the use of the "Fluid Lightning" is received.

Several months ago I had a patient, the dentine of whose teeth was so exceedingly sensitive, that it was with great pain to her, and trouble to me, that I could succeed in operating for her, and fill one cavity at a sitting. At about this time I had seen a very severe case of headache cured, in the space of a few moments, by the use of "Fluid Lightning." As the action of this preparation was so prompt, and decided in this case, it occurred to me, that it was possible and *barely* possible, that it might be useful in removing sensitiveness in dentine. I had previously used all the usual remedies for this purpose at hand, except cobalt and arsenous acid, with slight expectations, although hoping that some benefit might be derived from the use of "Fluid Lightning." I procured of Drs. Cram & Melcher a bottle of their preparation, without telling them to what purpose I wished to put it.

When my patient came at her next appointment, she said she felt quite unable to have me operate for her that day, and was sure that the pain would be so great, that she would go home exhausted. She, however, was seated in my chair for the purpose of having some wedges changed between her teeth. I then suggested to her that I should try a new preparation, and see what effect it would have upon the dentine, and it was possible that it might so relieve the sensitiveness, that I could operate. She at last consented that I should make the application. I dried the cavity, and applied the "Lightning," and in a moment or two I proceeded to excavate. After removing a portion of the diseased dentine, she experienced so much pain, that I was obliged to desist from operation. I applied the "Lightning" again, and proceeded to operate as before, she suffering but little, on removing the structure, that had given so much pain a moment before.

Soon, however, in excavating deeper into the cavity, she suffered quite severely. I applied the remedy a third time, and finished preparing the cavity, with but slight suffering, and filled it.

She had suffered so little during this, that I prepared and filled a second cavity at the same sitting, and she assured me that she had suffered far less in having these two cavities prepared and filled, than she ever had in having one prepared and filled at a sitting before. In future operations upon this patient, I used the "Lightning" in preparing cavities, with the same happy results that I have just mentioned, I then tried it in several other cases, and whilst the action in all was not so decided and prompt, as in the case I have just mentioned—but some were equally so—in no case have I used it, without greater or less relief.

At about this time, I found that two bicuspidis in my own mouth, on the labial surface near the gum, were beginning to decay, and were exceedingly sensitive. I called upon Dr. Crouse, and he undertook to remove the decay and polish the surfaces. I found the pain so great, that it was difficult for me to allow him to proceed with the operation. I had him apply the "Lightning," and I suffered but little pain, in having the operation finished.

My experience had now become so satisfactory, in the use of this remedy, and wishing others to test it, I requested the proprietors to send samples of it, to dentists in different parts of the country, (yourself among the number), with the simple request, that they should "try it," and report as to its action. In reply, Drs. Cram & Melcher received a good many letters, some speaking of it in the highest terms of commendation, others saying, that in some cases it operated well, whilst in others, but little relief followed its use; none, however, but what speak of it, more or less, favorably.

While in my own hands, I have not found it to operate in all cases with as great satisfaction as in the one I have mentioned, I have never used it without some benefit, and I can truly say, that I have used it with more *general* satisfaction, both to myself and to my patients, than any preparation that

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I have ever seen, for the purpose named. From what I have said, I trust that no one will expect that this remedy will at all times, and under all circumstances, operate with uniform results, when used for any *one* purpose. This is not the case with the operation of morphine, quinine, chloroform, ether, or any other remedy, in the *Materia Medica*, peculiar conditions of the system, or constitutional idiosyncrasies have much to do with the action of other remedies, and it can not be expected, that "Fluid Lightning" will be an exception to all others. If, however, dentists will get it, and give it credit for what it really can do, I feel sure, that they will find it so useful, that they will not wish to be without it

It is proper for me to say, that when I first commenced using this preparation, its odor to many people, (and to myself amongst the number), was decidedly objectionable.

At my suggestion, in this respect, that used for dental purposes was changed, and in changing the odor, its efficiency in obtunding the pain of sensitive dentine, has been perceptibly improved, the name *Dental Pain Obtunder* has been given to it.

So many teeth have been ruined by the use of other preparations for destroying sensitiveness in dentine, that the question will very naturally be asked, if the same effects will not follow the use of this remedy. To this, I reply, that so far, I have seen no unpleasant effects follow its use, and from the fact that it can be used without the after irritation or destruction of the mucous membrane, or the most delicate cuticle. I do not apprehend that any unpleasant results will follow its use.

Yours truly,
W. W. ALLPORT.

Proceedings of Societies.

OHIO STATE DENTAL SOCIETY, COLUMBUS,
DECEMBER 2d., 1874.

REPORT OF DISCUSSIONS BY F. W. SAGE, D. D. S.

WEDNESDAY AFTERNOON, DEC. 3d.

The President, Dr. H. A. Smith, announced the first subject for discussion: The Preservation of the Pulps of Teeth. Subdivisions as follows:

(a.) Systemic conditions modifying treatment and influencing its results.

(b.) The least injurious and yet efficient agents for covering and protecting the dental pulp and likewise promoting the formation of secondary dentine.

(c.) Causes of failure.

Dr. C. R. Butler, of Cleveland, opened the discussion, and said: It would seem that taking the first and second subdivisions of the subject presented for discussion, under consideration, they naturally coalesce. We can easily conceive of systemic conditions which would be very unfavorable to the accomplishment of anything like satisfactory results. Under many circumstances we could not reasonably expect good results. In cases where the pulp is even very slightly exposed the chances for its preservation are not equal to the chances where the organization is good. In cases where the constitution of the individual has become weakened and prostrated from any cause, we would hardly expect the highest degree of success. There are a variety of modifying phases which are to be admitted and considered. In some cases we may almost abuse the pulp tissue and yet it persistently retains its vitality. Cut away a portion of it and even apply

escharotics, as is the mistaken practice of some; (and I have known cases where arsenic has been applied) and yet the pulp has appeared almost entirely unaffected by the abuse. On the other hand I have seen cases where the least exposure has been sufficient to destroy the nerve pulp; so that we can only expect to arrive at anything like an intelligent course of practice to be pursued by careful observation of the structure of tissues involved—the temperament and organization of the patient—to govern us in our efforts to restore to health and preserve the pulp. As to materials to be employed, there is a great variety. Such are to be recommended as can best be adapted to the part which it is desired to protect and which are non-conducting and do not cause irritation. Perhaps one of the best, under ordinary circumstances, is Hill's stopping or gutta-percha. The use of the plastic materials is of course well known to us all, but their effect upon the pulp is not so well understood.

Some positively deny that all pulps are saved intact under these coverings; others assert that all or nearly all die. I am not prepared to say that I concur in the views or opinions of either of these positivists.

We cited a case of a young lady who at the age of fourteen had pulps capped in two inferior molars. Hill's stopping being used. Upon examination five years afterward, the pulps were found to be in good state of preservation, secondary dentine having been deposited. The teeth were of delicate organization, white and translucent. He discovered their condition after removing the temporary fillings. Filled them without farther treatment with gold. He continued: "I might cite other cases where Hill's stopping had been used successfully. Have seen plastic caps used in some cases with success, in others, unsuccessfully. It is to be remembered that the tooth is not a soft tissue—that it is not endowed with the highest vitality.

Dr. Watt was called, and responded as follows:

While I agree that the tooth is not endowed with the highest degree of vitality, I will say that the pulp has a vigorous circulation through all its capillaries and ramifications. It is

unfortunate that there is such a prejudice against all efforts to preserve an aching pulp in the popular mind. It is mortifying to us to know that a certain class of practitioners are easily influenced by the opinions and expressed wishes of the of the patient.

I suppose there is no more prevalent impression, erroneous impression, than that which obtains in the public mind that if the "nerve" be extirpated the tooth can not ache.

An individual comes to you with a fragment of a tooth sticking in the gum and requests to have the "nerve" killed. I suppose it is that education brought about through the agency of daily papers. For twenty-two or three years an advertisement has appeared in a Cincinnati daily, announcing "Nerves Destroyed," etc. Now since the nerve is endowed with high vitality we have a foundation to base an opinion upon, in considering whether or not it is practicable to preserve the vitality after exposure. Once exposed it is in a very precarious condition. The great difficulty is a lack of faith and confidence on the part of the dentist. Most of us become too easily discouraged because of failure after all our care in treatment.

Hence, we easily come to decide that when a nerve becomes exposed we must annihilate it. I believe that some of you who have read the journals for years past, will remember that I once published my opinion that there is no more necessity for the indiscriminate destruction of the pulps of aching teeth than there is for amputation in all cases of compound fracture of limbs. You should take into consideration peculiarities of temperament, hereditary peculiarities, etc. If there is a scrofulous diathesis your chances of success are greatly lessened. If you find only slight exposure and no pain, protect the pulp from extraneous matter as soon as possible. That is the simple course to be pursued when you find the pulp exposed and in healthy condition.

I have seen failures which have resulted after various modes of treatment. One of my teachers advocated the use of collodion as one of the best possible substances for a cap. He claimed that in its liquid state it fits very perfectly upon the

pulp and dries there. Experience has brought to notice serious objections to collodion, however. It appears that in the process of drying it contracts in such a manner as to tend to draw the pulp out of its bed and thus excites inflammation. In a similar manner it may draw loose from the sides of the pulp cavity, perhaps remaining attached at one point, so that we have a moveable cap. I have therefore thought that collodion ought to be abandoned. I formerly tried it prepared by the addition of turpentine, according to an approved formula to avoid shrinkage. I found that in time it decomposed and was a source of trouble. We want something that will simply inclose the pulp, and that will not irritate it by contact. Hill's stopping, warmed and pressed down, will do very well. Notice whether or not the operation is painful. Fill temporarily and await results before venturing to fill with gold. In my own practice I sometimes fail, but do not feel disposed to abandon the method on that account.

A case of exposure of a nerve came under my observation some time ago. The patient was a young lady. She was the perfect picture of health which circumstance I thought was favorable to an attempt to save the pulp. The tooth was a bicuspid. I capped it carefully with a shaving of Hill's stopping. After drying, I filled up the cavity with Hill's stopping. Two weeks ago I removed the filling. The tooth was in its normal condition. There was a little button of secondary dentine protecting the pulp. Through pure awkwardness I chipped that off, exposing the pulp the second time. Hæmorrhage followed. I allayed the pain, washed out the cavity, and repeated the operation of capping. After waiting four days, found there was no pain or uneasiness, removed all the filling, excepting the cap. Filled with gold and expect the tooth to do well.

During the winter of 1864 and 5, I treated a tooth where the nerve was exposed but in healthy condition. Filled it permanently and the case has done well.

I do not claim that I succeed in all cases. I never was absolutely successful in every instance in other matters.

The Dr. then protested against the unnecessary destruction

of the pulp. "When you have destroyed the pulp you have virtually destroyed the tooth. Few teeth are firm and strong enough to endure permanently after the pulp is gone. Let me advise you in conclusion, in treating pulps; let all your manipulations be very delicate and careful. We often forget how delicate a structure we have to deal with. Do not over do. Avoid disturbing the pulp. Remove the debris and then cap carefully as soon as possible.

Dr. Rehwinkle: The remarks of Dr. Watt are so well to the point that it would be folly for me to go over them again, it would be a waste of time. I fully concur in what he has said. I will say farther, that I would attempt to save the pulps alive in similar cases, at least in districts where there is no malaria to contend with. I would attempt it even in cases of fever. When the dental pulp is merely exposed, whether it has been done by the encroachment of caries or through accident, and it is otherwise in the performance of its natural functions, there is no reason why it should not be preserved. If the pulp therefore is accidentally wounded so far from feeling discouraged as to the final results of an attempt to save it, it would not disturb me in the least. I would be very careful however what agents I employed. I think in many cases pulps are doctored to death. Creosote has been almost universally used. I ask how many times has it been used intelligently and with discrimination? How many times has it been used when the operator knew just what he wanted to accomplish? Now I should think it perfect folly to put creosote upon a pulp which is in healthy condition. Why? Because it is an escharotic. We would not think of using creosote in its full strength upon an ordinary wound in order to induce it to heal by first intention. We might use it diluted to sponge out the wound. Dentists have been using carbolic acid in the same way, and it has been considered to be all right. We should employ the simplest treatment and the mildest remedies, because in the very elements of the blood we have recuperative power. If we want to go farther and assist the formation of secondary dentine we may employ escharotics. Generally speaking we should employ

remedies which soothe the nerve. I do not know that the time has arrived to announce certainly that we have found such a remedy. The lacto-phosphate of lime, it is claimed, promotes the rapid formation of secondary dentine. Dr. Cravens, of Missouri, was the first to introduce this remedy to the attention of the profession in convention a year ago. Since then I think a number of gentlemen have been experimenting with it, with the view of promoting the formation of secondary dentine. I can not myself give very encouraging report of it. Think it is of value in simple and uncomplicated cases. Where I think the saving of a tooth is practicable, I find this remedy goes far toward promoting good results. Some enthusiasts in the profession claim that almost any pulp no matter what its pathological condition, can be saved; that there is scarcely a circumstance under which a pulp may not be saved, even if it be partially devitalized and has sloughed off. I have never been able to accomplish this. I have made most signal failures, simply because of ignoring the circumstances and conditions which were necessary to be observed. Success is sometimes claimed upon insufficient data. I believe that gentlemen who make such favorable statements would not willfully misrepresent. But I think that they have not in all instances come to a correct knowledge of their own cases. A patient goes away and they hear nothing more from him, and since they hear nothing to the contrary take it for granted that all is well. Somebody else may perhaps have given the finishing touch to that pulp afterward. I have had cases of that kind come to my knowledge. I suppose you have. To save a pulp which has been exposed for an indefinite length of time, and has undergone many stages of inflammation where even the greater portion of it has sloughed off, is in my opinion utterly impossible. Whether it be attempted in a malarious district or any other, the result will be the same. It is not practicable in the nature of things, even in surgery itself. If a limb has mortified it must as a general thing be amputated. No surgeon in such a case hesitates to use the knife. In the cases of exposure of the nerve, however, even after inflammation has set in, I think an at-

tempt should be made to save it. As to the remedies to be used in inflammation, we never have come to any definite conclusion. A remedy which answers the purpose in one case may not do so in another. The results depend almost entirely, I believe, upon the judgment of the operator and his ability for justly estimating all conditions, and taking all the accompanying circumstances into consideration, and then proceeding intelligently, and selecting remedies such as are indicated by the peculiarities of the case. In one case, I find chloride of zinc is a valuable astringent to allay inflammation, in another case, I may use aconite, tincture calendula, or arnica. The great secret of success is, not to over do. An inflamed pulp soon suppurates. Sometimes this occurs in a day or two. Success need not be despaired of, if the case be treated in time.

The causes of failure can be summed up as follows: Want of skill in manipulation, want of judgment in selecting remedies, etc., and above all, in doing too much. Lacto-phosphate of lime has proved valuable in my hands, so far as I know, that is to say I know certainly of no cases of failure. Three years ago success was claimed for the use of oxy-chloride of zinc. We have learned however that it exerts a pernicious effect if applied in a semi-fluid state to the pulp. It is a powerful escharotic. Mixed to the consistency of putty it is less objectionable. In many cases where the pulp is supposed to be alive, after an operation you will find upon examination that it is actually dead. I have been deceived in this respect several times. Having had occasion to refill teeth in which the pulp had been capped, in removing the temporary filling and cutting into the dentine, I have remarked the absence of pain or tenderness. The color of the tooth has appeared normal, but the pulp has been dried up, mummified. Open the cavity freely in such a case and in three days you have inflammation of the root-membrane, and no end of trouble. Gentlemen pride themselves on their success, but if they will investigate they will find failure in many cases.

Dr. J. Taft: This subject has been discussed so often in our associations that in attempting to talk about it now, we la-

bor under a feeling of restraint and embarrassment, lest we should appear simply to reiterate what has been said before, and especially for the reason that I am aware that others understand the subject as well or better than I do.

Such is the importance of the subject that we can hardly overrate it. It has oftentimes been said, "Oh that subject is worn out, it is hackneyed." I say it is not worn out or hackneyed as long as the results of our investigations are not the best which we can reasonably hope to achieve, and as long as we can discover indications of ultimate success in the reports of experiments and observations which are made year by year, by the many earnest scientific men who are interested in knowing how they can best subserve the interest of their patients. This subject, I repeat, is not by any means threadbare. The best informed among us can gather much that will be available in practice and those who are not so well informed can gather still more. By the discussion of this subject we shall at least be stimulated to still farther investigation and research. There is not one of us who has accomplished all that he can accomplish in the way of experiment and investigation. The final result has not been attained when you say, "I operated upon an exposed pulp after the most approved methods, and the result was failure." That does not prove the fallacy of attempting to save exposed pulps. To study, as Dr. Watt has said, conditions and temperament, and endeavor to learn all about the peculiarities of the case and what the requirements are, and then perform your operation in conformity with those requirements, constitute the elements of success. You hear many say, "I treated a pulp so and so," without even reference to conditions. You may rest assured that he who talks on that wise does not recognize conditions. He has settled into a groove and he runs back and forth continually—never leaving it. When he gives his mode of treatment by successive steps, without making reference to systemic or local conditions, thus indicating that he fails to recognize them, I predict that his operations will eventuate in failure, nine cases out of ten. Many physicians practice medicine in the same way, and the

fact that they do not kill all their patients is that the recuperative powers of the patients, who are fortunately able to survive, are so excellent as to resist mal-treatment. The preservation of a pulp is very important, not only as far as the individual tooth is concerned, but as affecting the other teeth as well. If only one tooth becomes enfeebled or diseased, or looses its pulp, the adjacent parts become more or less involved. This varies of course according to the susceptibilities of the parts. Other teeth may be injured by the presence of the tooth, the pulp of which is dead. Irritation of the surrounding parts is far more likely to occur after the pulp is dead. The devitalized tooth deteriorates with varying rapidity, and sooner or later will break away and be lost, and of course the effect upon the other teeth is injurious. These facts are palpable to every one who has studied the matter and is familiar with the subject. Pulps of teeth frequently become devitalized before they are exposed at all. They sometimes become devitalized—such is the susceptibility to disease—before the tooth is even decayed. Others become exposed and irritated, inflammation sets in, and the case runs through the various phases of disease, and in spite of adverse circumstances they survive. These facts demonstrate that there is a great variety of systemic conditions. The pulp is more amenable to treatment by recognizing and dealing intelligently with these conditions. How few ever think of systemic conditions or regulate their practice by considerations arising from general pathological symptoms. We find a pulp exposed and our usual treatment is simply of a local character it is seldom directed to an honest endeavor to change the general systemic conditions to a more favorable state. But you ask, "what can I do?" That is just the question. We can not here have a course of lectures, three to six months long, to discuss the principles involved. I think it important that all should study the subject well, and learn from personal observation that which can be learned in no other way. Now what are some of the conditions which would modify treatment of the pulp? Suppose the blood is in an impoverished condition. It is not to be expected in such a case that you

can control the lesion with the same facility as if the blood were in good healthy condition. Supposing the blood is deficient in some important and indispensable constituent, perhaps the patient is anæmic, or there is a deficiency of fibrine, or red or white corpuscles of the blood; all these things would operate as impediments. The corpuscles may be defective and so be unable to perform their proper function. The influence of these conditions will extend to the pulp, as to the eye or other organ of the body. Perhaps some insidious poison is at work. You know how difficult it is to treat successfully a case where there is malarial influence. If you were going to select cases for treatment you would certainly avoid those which you know were charged with malaria. Change these unfavorable conditions, or if you are incapable, refer the case to some one who can. Here we see the necessity of the dentist's knowledge, embracing the whole range of medical science, and acquainting himself with the more minute principles of the science. We find different susceptibilities in cases which are apparently exactly similar. Do not make a blind dash at such cases. You find two persons who are apparently alike in condition. The one is far more susceptible to a given course of treatment than the other. Teeth, too, differ in their organization. At one period in life a tooth is more dense in its structure than at another.

SOUTHERN DENTAL ASSOCIATION.

The annual meeting of the Southern Dental Association will be held in the city of Memphis commencing on Tuesday Feb. 9th, at 10 a. m. Arrangements have been made which will undoubtedly secure a large and good meeting. The standing committees are all urged to see to it that good reports are prepared and presented, and in addition let all come prepared to contribute to the work to be done, and then a profitable, interesting, and enjoyable meeting will necessarily be the result.

We append the list of officers, and the members of the various standing committees:

Dr. J. R. Walker, Louisiana, President. Dr. Isaiah Forbes, Mo., 1st Vice-President. Dr. W. G. Redman, Ky., 2d Vice-President. Dr. R. R. Freeman, Tenn., 3d Vice-President. Dr. Homer Judd, Mo., Corresponding Secretary. Dr. Jas. F. Thompson, Va., Recording Secretary. Dr. J. Hall Moore, Va., Treasurer.

Executive Committee—Drs. W. T. Arrington, Memphis, Tenn.; W. H. Morgan, Nashville, Tenn.; Jas. S. Knapp, New Orleans, La.; H. J. McKellops, St. Louis, Mo.; S. H. Henkel, Staunton, Va.

Membership—Drs. S. J. Cobb, Nashville, Tenn.; C. A. Jordan, Huntsville, Ala.; W. G. Redman, Louisville, Ky.

Publications—Drs. R. B. Winder, Baltimore, Md.; J. F. Thompson, Fredericksburg, Va.; Homer Judd, St. Louis, Mo.

Dental Education—Drs. Homer Judd, St. Louis, Mo.; H. J. McKellops, St. Louis, Mo.; B. F. Coy, Baltimore, M. D.

Dental Literature—Drs. W. H. Eames, St. Louis, Mo.; J. P. H. Brown, Augusta, Ga.; F. J. S. Gorgas, Baltimore, Md.

Physiology and Surgery—Drs. W. H. H. Thackston, Farmville, Va.; J. S. King, Nashville, Tenn.; A. F. McLean, New Orleans, La.

Histology and Microscopy—Drs. W. H. Atkinson, New York City; S. P. Cutler, Memphis, Tenn.; J. H. McQuillen, Philadelphia, Penn.

Dental Chemistry—Drs. J. Taft, Cincinnati, Ohio; R. Finley Hunt, Washington, D. C.; Robt. Arthur, Baltimore, Md.

Pathology—Drs. Isaiah Forbes, St. Louis, Mo.; Arthur Ford, Atlanta, Ga.; F. Floyd, Fayetteville, N. C.

Dental Therapeutics—Drs. W. H. Morgan, Nashville, Tenn.; F. Y. Clark, Savannah, Ga.; R. B. Winder, Baltimore, Md.

Operative Dentistry—Drs. H. J. McKellops, St. Louis, Mo.; J. G. Wayt, Richmond, Va.; J. S. Knapp, New Orleans, La.

Mechanical Dentistry—Drs. Jas. Johnstone, Staunton, Va.; S. Augspath, Helena, Ark.; J. G. McAuley, Selma, Ala.

Voluntary Essays—Drs. W. H. Morrison, St. Louis, Mo.; J. B. Patrick, Charleston, S. C.; H. B. Noble, Washington, D. C.

Dental Appliances and Improvements—Drs. Stellwagon, Philadelphia, Penn.; Wm. Deason, Mobile, Ala.; W. G. Kingsbury, San Antonio, Texas.

Editorial.

TWENTY-NINTH VOLUME.

With this number begins the twenty-ninth volume of the DENTAL REGISTER; and the nineteenth year of the present Editor's connection with, and work upon it.

This work, through all these years, though laborious and incessant, has been in many respects a pleasant one, and not without a good measure of gratification.

Through all the vicissitudes and changes that have occurred during that time, it has never missed the regular issue of a single number, though for several years it was carried on at a considerable, pecuniary sacrifice, but a compensation for this, to some extent at least, was realized in the hope that some good was being accomplished. The REGISTER has always had many true friends, and some who thought it was no better than it ought to be. We have had our full share of the ups and downs of an editor's life; all of which we have endeavored to accept, with a becoming demeanor. We trust that for the future the REGISTER may present some improvement upon the past, and this will result if the profession desire to have it so.

OBITUARY.

DEATH OF DR. GEORGE E. HAWES, OF NEW YORK.

A meeting of dentists, called at a few hours' notice, on Tuesday afternoon, August 25th, 1874, (on receipt of the news of the death of Dr. George E. Hawes, of this city, at Wrentham, Mass.,) was held at the residence of Dr. J. G. Ambler, No. 25 West Twenty-third street, who presented the following preamble and resolutions, which were unanimously adopted:

WHEREAS, An All-wise Providence has seen fit to remove, by death, our much esteemed friend and professional brother, Dr. George E. Hawes, of this city; therefore,

Resolved, That while we bow in humble submission to the decrees of Him who doeth all things well, we can not refrain from expressing our feelings of sadness and sorrow at the loss our profession has sustained in the demise of our much esteemed friend and brother.

Resolved, That we show our affection and appreciation for his many virtues and bright example, by placing on record these expressions of our bereavement and sorrow.

Resolved, That our sympathies, true and heartfelt, are hereby tendered to the family and friends of deceased, as well as the profession at large, in this dispensation of Providence. Though we lament his death, we can not be unconscious that our loss is his gain.

Resolved, That a committee be appointed by the chair to prepare a suitable memorial for publication in the dental and medical journals.

Resolved, That these proceedings be published in the New York Times and the Observer; also, a copy sent to the family of deceased. [Signed,]

J. G. AMBLER, Secretary. JOHN ALLEN, Chairman.
Committee on Memorial.

J. G. AMBLER, JOHN ALLEN, W. H. ATKINSON,
J. PARMLEY, L. COVILLE.

MEMORIAL

OF

DR. GEORGE E. HAWES.

Dr. George E. Hawes, the subject of this brief memorial, was born in Wrentham, Massachusetts, May 28, 1810. His father, Colonel George Hawes, was a man of integrity and uprightness, whose patriotism was of an active character; in our Revolutionary struggles, he filling his place in the ranks of the colonial patriots, battling against aggressive and oppressive acts of the mother country, and subsequently serving the State in its halls of Legislation. His mother still survives him at the advanced age of ninety-five years, having laid all

the members of her immediate family in the resting-place of the dead. Dr. Hawes commenced his preparatory course as a dentist in the office of the late Dr. John Lovejoy, and after completing his course of study with him, he commenced the practice of his profession in Park Place, and after years of diligent and successful practice, located in Bond street, where he continued his professional career until laid aside by impaired health. He was an eminently successful dentist, retaining the confidence of his patients by the perfection of his operations and his uniform urbanity.

By the members of the profession he was universally esteemed; his opinions on different operations, or cases in practice, were appreciated, because they were judicious and sound and there are none who knew him who did not feel that a safe operator has been lost by the community, and an appreciative and safe counsellor by the profession. We shall miss his acquaintance and counsel. Dr. Hawes was a Christian gentleman who adorned the circle in which he moved, and those who knew him best, appreciated him most.

The family who survive him have, in the recollection of the past, and in the assurances of his blessed future, all the consolation necessary to assuage their great grief and make supportable their great bereavement.

[Signed,] J. G. AMBLER, *On behalf of the Committee.*

DIED on the 14th of Dec., in the 78th year of his age Dr. E. Parmly of New York.

Dr. Parmly has been an active and prominent member of the dental profession for about fifty years; and in the earliest part of his professional life he did more perhaps than any other man, in this country at least, to give tone, dignity and identity to the Dental Profession. He was one of nature's true noblemen, to which was added a high degree of refined culture. We purpose as early as practicable, perhaps in the next No. of the REGISTER, to publish a sketch of his life.

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DENTAL REGISTER.

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FEBRUARY, 1875.

[No. 2.

REVIEW OF DR. ALLPORT'S PROPOSITION TO
SEPARATE THE MECHANICAL FROM
OTHER DEPARTMENTS OF
DENTAL PRACTICE.

BY J. RICHARDSON, TERRE HAUTE, IND.

"Now, in the names of all the gods at once,
Upon what meat doth this our Cæsar feed,
That he is grown so great."—*Shak.*

In an address recently delivered before the American Academy of Dental Science, Dr. W. W. Allport earnestly and elaborately advocates the above proposition. The position taken by him is, if we comprehend it rightly, that the practice of what are called the higher branches of dentistry, as the operative, medical and surgical, is established upon a medical basis, and therefore allies these branches closely to medical science, while what is known as the mechanical branch, or dental prosthesis, relates only to a mechanical art,

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requiring but a limited knowledge of medical science,—that being thus essentially dissimilar, incongruous and incompatible, they should be divorced. This, we believe, is a fair epitomized statement of his proposition.

It might be reasonably expected that so extraordinary a proposition as that embodied in this address—a proposition formally and ostentatiously submitted to the deliberate and critical judgment of an intelligent profession through the medium of a prominent organization which deemed it of sufficient importance to perpetuate it in pamphlet form, should be fortified by well grounded considerations of policy, expediency, propriety and necessity. We concede to the doctor's treatment of his subject a certain plausibility which is well calculated to mislead a casual reader or careless thinker, but the arguments employed in support of his scheme will not, we believe, bear the test of even a moderately searching analysis. If this shall prove to be true, we will do our distinguished friend the justice to concede that the misfortune of failure will not rest so much with himself as in the inherent weakness and untenableness of the proposition itself.

In attempting to review this rather remarkable contribution to dental literature, we are confronted at the outstart by a brace of difficulties, one of which is to treat the subject-matter of it, as we sincerely desire to do, with gravity, and the other is to resolve some sort of order out of the doctor's disjointed methods of reasoning, for our friend scatters his shot like a blunderbuss, projecting them here and there into a mass of verbiage in the most reckless and promiscuous manner, and without any christian regard to continuity of arrangement. How many of these comparatively harmless little missiles may be found to have penetrated beneath the cuticle of his subject, it is our present purpose to ascertain.

"The true mission of medical science," we are told, "is to preserve and restore health, and save life and limb, and not to make or have to do with the making of artificial substitutes any further than as they shall be made directly useful in subserving these purposes." A truer and more comprehensive definition would be that which should harmonize with the

Baconian philosophy, that the grand and ultimate purpose of all the natural and physical sciences is to contribute something to the sum of human happiness, and to promote the welfare of the race. Properly, the preservation and restoration of health, and the saving of life and limb, are but the contributions of medical science to this grand humanitarian object, and nothing may be considered unworthy of its disciples which shall fulfill, in the most perfect manner, this higher mission.

But we will accept, for the purposes of this review, the definition given. If it be so that the true mission of medical science is, amongst other things, to preserve health and save life, then, next to the preservation of the natural teeth, does the substitution of artificial ones fulfill most perfectly this grand mission by contributing to these ends. We need scarcely insult the author's intelligence by reminding him that mastication, as a preliminary act of digestion, exercises a controlling influence over the health of the individual, and that its imperfect performance almost certainly compromises it by engendering disorders of the *primæ viæ*, and oftentimes menaces and prematurely destroys life itself by awakening, through a perversion of the nutritive functions, latent predispositions to some of the gravest forms of disease. And need we remind him further that this preliminary act can not, in any sufficient degree, be accomplished without the proper organs, natural or artificial. Making allowance for the difference in value of natural and artificial teeth in respect to the efficient performance of this function, the man who skilfully constructs a set of teeth, answering even in a tolerable degree the purposes of the natural organs, meets as fully the claims of the mission here spoken of as any one devoted to the so-called higher branches. If this be true, and we do not think it will be gainsayed, then this intimate and important relation of mechanical practice to health and life, allies it, in the same manner as the other departments, to medical science, and we venture to affirm that there is nothing within the entire range of surgical prosthesis that bears any just comparison to it in the gravity of the personal interests involved.

Following the paragraph already quoted, we are treated to the following sage observation:

"Wig making, and the manufacture of artificial limbs and eyes are useful and respectable callings, and when properly pursued require a good degree not only of mechanical skill, but also of artistic taste, and as well almost might the making of these be taught in the medical college, as the making of sets of teeth form part of the curriculum in a medical specialty."

The facility with which our author confounds things is one of the marked features of his unique production. He here attempts to run a parallel where not the slightest analogy exists, so far as the relation of these several processes to medical science is concerned, and that is the question at issue.

The doctor furnishes us every facility for drawing the line of demarkation between them. He affirms that the true mission of medical science has nothing to do with the making of artificial substitutes only so far as they shall be made useful in subserving the purpose of preserving and restoring health, etc. Now artificial teeth are efficient in the proper mastication of food,—mastication is essential to good digestion, and the latter to a healthful play of the nutritive functions,—therefore artificial teeth are useful in subserving the purposes of preserving health, and of restoring it when previously impaired by reason of defective mastication. Will it be claimed that artificial limbs or eyes have any such relation to the preservation or restoration of health? On the contrary, are they not merely supplemental contrivances for purposes of locomotion and disguise, and which could be dispensed with without prejudice to either health or life.

Does not the author also blunder when he seeks to draw a parallel between the manufacture of artificial limbs, which is but a process incidentally appertaining to a department of general medicine, and the setting of artificial teeth, which is a department in itself. He has sprung a question in this address for the consideration of the profession which contemplates an important modification of its educational policy, and this question must be discussed, therefore, in the light of the

fact that dentistry, though in the abstract a department of medicine, is, in the completeness of its educational system, a professional body identical with general medicine. This is not only assumed by its members, but is affirmed by its separate colleges empowered to grant appropriate degrees, its text books embracing every department of its practice, its distinctive journals and multiplied associations, and in the subdivision of its practice into special departments.

Amongst the latter, mechanical practice stands fully and broadly recognized. Certainly Dr. Allport will not claim that the manufacture of artificial limbs is a department of general medicine. Is it not then absurd and wholly inadmissible to claim any analogy between the manufacture of artificial limbs, which is but a process incidentally appertaining to the department of surgery and the setting of artificial teeth which is a department in itself. Had he instituted a comparison between the making of artificial limbs and that of porcelain teeth, he would have hit upon a well defined analogy.

The making of artificial limbs, bearing the same relation to surgery that the manufacture of mineral teeth does to mechanical practice, we must substitute this analogy for that employed by the author, and the sentence, when paraphrased, will then read—"The manufacture of artificial limbs is a useful and respectable calling, etc., but as well almost might the making of these be taught in the medical college, as the making of mineral teeth form part of the curriculum of a medical specialty." We need hardly say that, in this aspect of the matter, the point made by Dr. Allport in this connection loses all force and application as an argument.

The only assignable reason why neither of these processes form any part of the curriculum in medical or dental colleges is that, by common consent, their manufacture has passed out of the hands of special practitioners into those of non-professional parties, not so much because their fabrication was inconsistent with the requirements of the former, as on grounds of greater convenience, reduced cost, and economy of time and labor.

Let us consider this matter a little farther. If a dentist may not, without forfeiting his right to be regarded a special practitioner of medicine, practice the setting of teeth, which has an important relation to the preservation of health, what shall be said of the oculist who "sets" artificial eyes, which have not in the remotest degree any such relation.

The practice of ophthalmology is, in many essential features, much like that of dentistry. There is indeed a marked resemblance in the nature of the demands of these two departments. The primary object and obligation of the oculist is to preserve intact the organs of vision, and secondarily to provide substitutes when the former are lost, just as it is primarily the duty of the dentist to save the natural organs of mastication, and, failing in this, to provide artificial ones. If, by reason of accident, or incurable disease of the eye, this organ is lost, the oculist proceeds by the necessary measures to prepare the socket for the reception of an artificial substitute. He then selects one harmonizing in color, configuration, and expression. This is prepared for easy and comfortable adjustment by grinding, polishing, etc., and then applied. If irritation or inflammation follows its use, he is charged with the duty of combatting these morbid conditions, and all further necessary manipulations of the substitute. Could the analogy between these steps and those employed by the dentist in setting teeth be more striking or complete? Now, if the oculist does not consider it derogatory to his professional standing as a medical specialist to concern himself about all these mechanical details in a matter that is wholly one of personal appearance, need the dentist do so in the construction of an artificial substitute intimately related to the physical well-being of his patient? Is the selection, grinding, polishing, and adjusting of an artificial eye better established upon a medical basis, or more nearly allied to medical science than the setting of artificial teeth? If Dr. Allport had the misfortune to lose an eye, and desired an artificial one, would he not go direct to an oculist instead of the manufacturer of artificial eyes, and if so, would he not be asking the oculist to do that which he here claims would derogate from his own

standing as a dentist in the case of artificial teeth? We should have almost as poor an opinion of an oculist who should refuse, under such circumstances, to contribute his professional services in restoring to the countenance of our really handsome friend its usually agreeable expression, as we would of the Dr. should he refuse, on solicitation, to provide the oculist with a set of teeth.

As a further pretext for lopping off mechanical dentistry we are told that it "has, in the last few years, been steadily retrograding, and becoming more and more a trade." In justification of this statement, it is affirmed amongst other things, that, "Up to about twenty years ago the mechanical department of the practice required a practical knowledge of the nature of the precious metals and skill in working them, and a high order of mechanical talent in applying intricate mechanical laws, in fitting and rendering useful the different forms of plates, together with mechanical and artistic skill in adjusting the substitutes so as to subserve the purpose for which they were intended." * * * * And "That plates of precious metal, requiring mechanical skill of a high order to manipulate, have, in a large, majority of cases, been substituted by plates cast from baser metals, or by rubber vulcanized in molds, these requiring neither a high degree of judgment nor mechanical skill to accomplish results tolerably well, limited by the properties of the materials used. "It is to be understood from this, therefore, we suppose, that the character of this department, as a legitimate branch of dentistry, is to be determined, not by the beneficent results of its practice, but by the intricacy, tediousness and complexity of the processes by which such results are obtained." As a curiosity in its way we turn this argument over tenderly for the consideration of the charitably disposed reader with the injunction to "handle carefully" as it is altogether too attenuated and fragile for the purposes of criticism.

Chiefest among the *degenerate* methods mentioned above is that of the rubber base. If this method, amongst others, has degraded the mechanical branch of practice, as alleged by the author, so that it should no longer be considered worthy of

alliance with the other departments, is it not rather singular that the profession has, for years past, been engaged in a tedious and vexatious course of litigation, and has expended thousands of dollars to fasten this method upon us by breaking down a patent, the effect of which is to limit its use by the imposition of an onerous royalty. These contributions of effort, time and means have not alone been made by the inferior class of practitioners into whose hands the author alleges this branch has fallen, but chiefly by those of the profession of whom Dr. Allport is a conspicuous representative. We have no doubt but that the Dr. himself has contributed liberally to this purpose, and if he has so voluntarily aided in perpetuating a process which he distinctly affirms has degraded an important branch of his calling, he must pardon us if we apply to him the familiar adage, that "it is a dirty bird that befouls its own nest."

But we deny emphatically that this department has retrograded as charged. Let us contrast briefly the methods now in vogue, with those employed before the introduction of rubber as a base, and in doing so we shall take gold and rubber bases as the representatives of the old and new. We will not include continuous gum work, for it has never been used except in a very limited way, and probably little more twenty years ago than now.

That there is greater economy of time and labor in the use of rubber as a base, no one will deny. That it is more susceptible of accurate adaptation to the mouth is equally clear. By the old method of swaging, a practical adaptation was often difficult and sometimes impracticable by reason of the unavoidable contraction of metallic dies, and the springing or warping of the piece in the process of heating and soldering. The dental journals fairly groaned under the load of contributions suggesting ingenious devices, and complicated methods for obviating these troubles. In the use of rubber there is perfect exclusion of foreign substances subject to decomposition, and consequent cleanliness and purity. By the older methods, the utmost care in adjusting the teeth to the base and to each other was inadequate to avoid interstices for the

lodgment of pulpy portions of food and the secretions, which decomposing, renderd the substitute a cesspool of impurities, alike harmful and disgusting. The use of rubber enables the operator to secure the most advantageous articulation of the teeth by an optional disposition of them in relation to the base. This is not true of the other method, since they must rest immediately in contact with the metallic plate, oftentimes necessitating a faulty inclination and consequent faulty occlusion of the teeth, a matter of prime importance in respect to the efficiency of the substitute. In the use of rubber, great latitude is afforded in the restoration of the accustomed fullness and contour of the lips and cheeks. Not so of the other. Substitutes of rubber are more readily repaired and with less risk of injury to the teeth and impairment of adaptation. They may also be reproduced or duplicated, a thing impracticable by the other method. And so on.

What is here said in behalf of the rubber base, applies with equal propriety to celluloid. Now these are all points of superiority of these plastic, vegetable substances over gold as a base. In what respects are they inferior or less desirable? Being but indifferent conductors, they produce a certain morbid condition of the parts on which the substitutes rest, probably by retention of animal heat, but which is of so harmless a nature that the patient's attention is rarely directed to it. Local and constitutional injury is ascribed to the poisonous action of the red oxide of mercury entering into the composition of the rubber, but this, which is greatly a matter of speculation, is now being obviated by the exclusion, wholly or in large part, of this objectionable coloring ingredient. Celluloid is wholly exempt from this objectionable feature and recent improvements in its manufacture and modes of manipulation give assurance that at no distant day, its general introduction into practice will probably in a great measure supersede the use of the former.

Now when it is considered that, in connection with the use of these plastic materials, the same requirements obtain in reference to the appropriate selection of teeth for individual cases, and the same exercise of judgment and artistic taste

in their arrangement, as in the older methods, we ask, in all seriousness, if these later methods of replacement do not, upon the whole, indicate improvement, rather than retrogression. If by achieving the same or better results by such processes as simplify and expedite the work of the laboratory is evidence of degeneracy in the mechanical department, then, by parity of reasoning, the use of all the modern appliances to accomplish like results at the chair, as the rubber dam, burring engine, etc., are just as conclusive evidences of degeneracy in the operative branch. As pertinent to the matter in hand, suppose some one should put himself in the way of becoming a millionaire within the next twelve months by devising a plastic material for stopping teeth which should combine perfectly all the essential and required properties of a filling, would the Dr. regard the introduction of such a substance as an evidence of retrogression in the operative department, and would he refuse, on the same grounds, to abandon the present use of gold and the more tedious, laborious and complex processes of working it. Will our distinguished friend rise and answer categorically.

The author says that within the last fifteen years there has of been an increasing demand for cheap sets of teeth, the result which is "that the better class of men entering the profession are devoting their time, almost exclusively, to operative dentistry." If this be true, commend to us cheap sets of teeth. If their cheapness leads to such a desirable result, we know of no better purpose they could serve, unless it be the satisfaction of the claim which the poorer classes, and they constitute the mass of mankind, have upon us as practitioners of a beneficent and humane calling which contemplates something more than a large margin of profits.

The truth is that practitioners are giving their attention to operative practice now more than formerly because less of their time is required in personal supervision of the tedious and complex processes of twenty years ago, and which have since been so simplified in connection with other methods, that they may now be almost exclusively entrusted to assistants. If there is an inferior class of men availing themselves of the

simplified methods of this department for unworthy purposes our case is by no means phenomenal, as this evil finds its counterpart in the other professions. Medicine has its quacks, law its shysters, and divinity its imposters, but the abuse of opportunities in any of these does not by any means derogate from their character, usefulness or importance.

The author arbitrarily divides the profession in the United States into two classes, one of which embraces 2,000 competent practitioners of scientific dentistry, and the other 10,000 incompetents. The practice of the first class, he says, is established upon a medical basis, while the latter relates only to a mechanical art, and of these he remarks that "the tastes, habits and acquirements of the two classes are as divergent, as are the characters of true science and art." Now, this statement is disingenuous, as there are no two classes in the sense of one being devoted exclusively to mechanical and the other to the remaining branches, but on the contrary only a single class whose practice embraces all the departments alike, and it might with equal propriety be said that the tastes, habits and acquirements of the dental practitioner who performs a purely surgical operation for the removal of a tumor, and another who performs the purely mechanical operation of filling a tooth, are as divergent as are the characters of true science and mechanism. We believe with Dr. Allport that, for obvious reasons, "the practice of both by the same individual prevents the highest development of either" but this does not by any means imply that there is any inconsistency in a dental practitioner doing so if inclination prompts him or his interests demand it.

If Dr. Allport's mode of reasoning in this connection is admitted, we shall soon have a demand for elimination in the practice of operative dentistry, and certainly it might be pressed for the same reasons. Allaying sensibility of dentine and the treatment of alveolar abscess, and of the pulp preparatory to the stopping of teeth, etc., being established upon a medical basis, and the mere mechanical operation of filling, which relates only to a mechanical art, implies the same incompatibility of taste, habits and acquirements in respect to the na-

ture of the services rendered as is claimed to exist between the departments under consideration. We fear the measure of our author's ambition will scarcely be satisfied short of that ultimate degree of medical sublimation, so to speak, foreshadowing the professional millenium when we may not only lay unquestioned claim to the title of dontologists, but may even aspire to the still prouder distinction of being dubbed odontologists, as suggested by our gushing friend Dr. Mills, of Brooklyn, in a recent number of the St. Louis Journal.

"To drop the teaching of mechanical dentistry in private offices and in our colleges, would," we are told "in a few years, permanently divide the practice, etc."

Nothing could be more eminently Quixotic than the faith that inspired this prediction. Suppose the teaching of this department were dropped by the schools, would even any considerable number of the graduates accept it as anything binding or obligatory in practice, conflicting, as the practical separation of the departments would, with their interests. Certainly the 10,000 members of the profession in this country whom the Dr. says are not graduates, would spit upon and repudiate, as an obligation, a scheme the practical effect of which would be to jeopardize their means of support, and menace them with poverty and want, for it must be remembered that the practice of all the departments is essential to the comfortable support of a large majority of dentists and their families. The interests, as well as the inclinations of this large body of men, would combine to perpetuate the "co-partnership between medical science and a mechanic art, originally entered into and conducted under the firm name of 'dentistry,' and the youngest of those now practicing it will probably never survive to see the day when the association of operative and mechanical dentistry will be 'disconnected in the minds of the public.'

"And very soon," continues the author, "each town of any considerable size, would have one or more of these (mechanical) practitioners who, by relying upon success in this calling for support, etc., would seek to redeem and elevate this particular art to the highest degree attainable." This is the

most unfortunate of all the author's many false assumptions. If mechanical dentistry has retrograded, as charged, while practiced under the saving and regenerating influences of an intimate association with a learned professional body, and exposed continually to the salutary and restraining checks of its ethical regulations, to what lower depths would it sink, cut loose from such associations and professionally ostracized. Being stigmatized as a trade, it would at once sink to the level of such a pursuit, and its interests as such promoted by all the unscrupulous and nefarious tricks and devices which enter so largely into the conduct of modern competition. There would not be a square foot of blank wall, a panel of road fence, or a cross-roads finger-post that would not be plastered all over with flaring dental placards extolling the superiority of Dr. so and so's artificial teeth over those of all other manufacturers. Actuated alone by considerations of thrift in trade, there would be the strongest motives to discredit the value of all operations upon the natural teeth, and the untold and irreparable injury which would thus be inflicted upon conservative dentistry, and through it, upon the community, would be simply incalculable, and such as no humane or conscientious man could for a moment contemplate with satisfaction.

We have extended this review beyond its intended limits. In it we have endeavored to treat the arguments employed by Dr. Allport in support of his project of dismemberment with entire fairness, as well as in the spirit of the utmost friendliness and regard for the author personally. We conclude by remarking that, recognizing as we do that the whole duty of a dentist to his patients embraces everything having relation to his welfare in matters appertaining to the oral cavity, whenever we shall discover that our professional aspirations are overleaping this central idea of duty, and we are in danger of out-growing our professional clothes and are unable longer to adapt ourself to the "regulation suit," we shall proceed, as gracefully as possible, to "step down and out" and seek some more congenial pursuit.

Feb-2

COHESIVE AND NON-COHESIVE GOLD.

BY J. S. RICE, M. D., SHELBYVILLE, INDIANA.

An Essay read before the Eastern Indiana Dental Association.

Mr. President and Gentlemen:

Much has been said lately of the comparative merits of cohesive and non-cohesive gold as a dental stopping, and although this agitation does not emanate from gentlemen who have distinguished themselves as workers of cohesive foil; yet men, not unknown to fame in the dental profession, have not only called into question the entire system of contour filling, but have declared the whole process of filling with cohesive gold a failure; and by recital of ingenious experiments, and theories of no little plausibility, they endeavor to explain to us that contour fillings can not stand as a house built upon a rock, but that the waters rush about them and, under them, and they vasculate, and totter, and are gone. If we accept these views, the efforts of the majority of the most skillful operators in the country have not only been wasted during several years, but the public confidence which they have inspired, by their zealous assurances, and the beauty of their work, will have been deceived, and the calamity to the profession must necessarily be great, and many disappointed and conscience-stricken dentists must expiate their folly for having basked in this glowing ideal, and exclaiming "Eureka!" when they in reality had not found it. The big file and thick-edged corundum disc must be installed, irregular walls must be leveled, and cylinders and wads of non-cohesive gold piled and propped flush to their borders.

Public taste must be cultivated to appreciate the improved form of bicusps and molars filled to resemble canines, and the dentist, who must not only be an artist but a philosopher as well, can calm the apprehensions of patients who may think these slopes will cause food to glide and wedge unpleasantly, by explaining that such ideas, though plausible, are practically an illusion, and that the point of the tongue passed occasionally

through these spaces not only acts effectually in dislodging any accidental accumulation, but after a little practice becomes a pleasant pastime, besides adding to expression by relieving the monotonous repose of the features.

If we must accept such conclusions as have been formed by some recent writers, the use of amalgam must inevitably increase to the extent of at least a few tons annually, for it is remarkable that the distinguished gentlemen who find cohesive gold so unfit a material for filling teeth, breathe no word of harm to amalgam, and some have found it a good preserver, especially when unwashed and with no surplus mercury squeezed out, and one gentleman particularly, who has been most prominent in pointing out the shortcomings of cohesive foil and contour fillings has himself discovered and placed in the market an amalgam which he knows to be non-shrinkable and good, unless it be exposed to the *absurd and peculiarly American process of washing and squeezing*.

Now is it true that cohesive gold can not be applied to the walls of a cavity so as to thoroughly occupy and hermetically seal it? Can it not be adapted to every variety of surface and margin, and welded into one solid mass and extended to protect exposed borders, and restore form, and at the same time remain unimpaired as a protector of the cavity proper? Or do they tell us that these fillings contract and expand keeping up an ebb and flow of fluid between the gold and the wall of the cavity, or is there a catalytic action or a peculiar something else which causes enamel and dentine to perish in the presence of cohesive gold.

No such conjectures have facts to sustain them, we repeat, that this condemnation of contour fillings by distinguished dentists does not come from men who, had become known as experts in the use of cohesive gold; they indeed may have tried it and become dissatisfied as have sculptors endeavored to form from a block of marble a Venus or an Apollo, and failing in their efforts have found plaster of Paris yield a readier obedience, nevertheless marble continued to be used by their contemporaries beneath whose hands it took satisfactory forms.

The opinion of the essayist strengthened by much observation and considerable experience, is that cohesive gold in the hands of an operator who has become expert in its use is for general application to all classes of cavities, the most reliable dental stopping at present known, that it can be adapted to all the inequalities of walls and margins of any ordinary cavity is a certainty, and that it may in many cases be firmly anchored in the main cavity, and built out for the restoration of any desired contour is a property which forms at once its most beautiful and useful attribute.

But to use it successfully absolute thoroughness in the preparation of the cavity, and the manipulation of the filling material are requisite. Where frail walls that can not be protected are left standing, and chalky enamel or softened dentine forms any part of the margin of the cavity, no filling, however perfect, can arrest decay, and should the cavity be faultlessly prepared and be not accurately filled and finished smooth, full and solid to its edges, the operation will surely fail. We think that it is under circumstances of this nature, that unfavorable observations have been made regarding cohesive gold.

Yet as to soft foil, no one who is acquainted with its time-tried qualities can dispute its usefulness, and the dentist who is unacquainted with the manner of manipulating it has omitted an important acquirement; in suitable cavities it can be adapted with great accuracy and protects perfectly so long as exact and entire closure of the cavity is maintained, but the very quality of soft gold that is claimed as its greatest virtue—its non-union—renders it incapable of forming a filling of sufficient tenacity to resist the mechanical forces incident to its use in the mouth, and as it is thus entirely inapplicable to any outward restoration beyond the margins of the cavity, it can not, if used alone, be successfully applied except in deep cavities with good strong walls. Cohesive gold, on the other hand, both preserves and restores, and our assertion that it fills the requirements of a permanent filling material more fully and approaches nearer to our beau ideal of a dental preserver and restorer than any other one substance in use, we think,

is corroborated by the experience and observation of scores of the best operators in the world. But to avail ourselves of the advantages of this material, and to be able to use it with success, we must be in possession of a discretion and knowledge of principles which no amount of ingenuity or mechanical genius can replace. Nevertheless skillful manipulation stands prerequisite, the intractable coffer dam must be taught obedience to the fingers, the slabs or pellets of gold must be taught not to roll and crumble, but to take up their position with alacrity before the instrument. Cavities must be cut until thoroughly formed to a retaining shape, and on this point there should not remain a shadow of doubt when preparing an anchorage you may meet in your path a ridge of solid enamel that laughs at steel, but go through it, cut it with a stone, or crumble it with bur or file; retaining points always fall in tender places, and as the patient shrinks before the drill, our sympathies struggle with our judgment, but in this matter we must gently persist till we gain the point. Some patients object to the time and expense necessary for contour work. Many are unable to meet the expense of having it done at all, yet this offers no obstacle to our supplying it to such as appreciate it, and have the currency and the will to compensate us.

INVERTING THE BODY IN CHLOROFORM POISONING.

If dentists and doctors are to go on using chloroform as an anæsthetic, they ought to be familiar with what is known in Europe as "Nelaton's method" of dealing with cases of narcosis occurring from its administration. This treatment was the subject of two communications at the late meeting of the

British Medical Association at Norwich, Eng., where it excited much interest. The first of these was so graphic a description of the method that we reprint the full report of it given in *The Doctor*:—

Dr. Marion Sims thus related a case in which Nelaton was present: "In the midst of the operation, the chloroformist, Dr. Campbell, said, 'Stop! stop! No pulse, no breathing!' and, looking to M. Nelaton, he said, 'Tete en bas, n'est-ce pas?' Nelaton replied, 'Certainly; there is nothing else to do.' Immediately the body was inverted, the head hanging down, while the heels were raised high in the air by Dr. Johnston, the legs resting, one on each of his shoulders. Dr. Campbell supported the thorax. Mr. Herbert was sent to an adjoining room for a spoon, with the handle of which the jaws were held open, and I handed M. Nelaton a tenaculum, which he hooked into the tongue, and gave in charge to Mr. Herbert; while to Dr. Beylard was assigned the duty of making efforts at artificial respiration, by pressure alternately on the thorax and abdomen. M. Nelaton ordered and overlooked every movement, while I stood aloof and watched the proceedings with, of course, the most intense anxiety. They held the patient in this inverted position for a long time before there was any manifestation of returning life. Dr. Campbell, in his report, says it was fifteen minutes, and that it seemed an age. My notes of the case, written a few hours afterward, make it twenty minutes. Be this as it may, the time was so long that I thought it useless to make any further efforts, and I said, "Gentlemen, she is certainly dead, and you might as well let her alone." But the great and good Nelaton never lost hope, and by his quiet, cool, brave manner he seemed to infuse his spirit into his aids. At last there was a feeble inspiration, and after a long time another, and by and by another; and then the breathing became pretty regular, and Dr. Campbell said, 'The pulse returns, thank God; she will soon be all right again.' Dr. Beylard, who always sees the cheerful side of everything in life, was disposed to laugh at the fear I manifested for the safety of our patient. I must confess that never before or since have I felt such a grave responsibility.

When the pulse and respiration were well reestablished, M. Nelaton ordered the patient to be laid upon the table. This was done gently. But what was our horror, when at the moment the body was placed horizontally, the pulse and breathing instantly ceased. Quick as thought the body was again inverted, the head downward and the feet over Dr. Johnston's shoulders, and the same manœuvres as before were put in execution. Dr. Campbell thinks it did not take such a long time to re-establish the action of the lungs and heart as in the first instance. It may have lacked a few seconds of the time; but it seemed to me to be quite as long. For the same tedious, painful, protracted, and anxious methods were made as before, and she seemed, if possible, more dead than before; but thanks to the brave men who had her in charge, feeble signs of returning life eventually made their appearance. Respiration was at first irregular, and at long intervals; soon it became more regular, and the pulse could then be counted; but it was very feeble, and would intermit. I began again to be hopeful, and even dared to think that at last there was an end of the dreadful suspense, when they laid her horizontally on the table again, saying, 'She is all right this time.' To witness two such painful scenes of danger to a young and valuable life, and to experience such agony of anxiety, produced a tension of heart, and mind, and soul, that can not be imagined. What, then must have been our dismay or feeling of despair when, incredible as it may seem, the moment the body was laid in the horizontal position again, the respiration ceased a third time, the pulse was gone, and she looked the perfect picture of death! Then I gave up all as lost, for I thought that the blood was so poisoned, so charged with chloroform, that it was no longer able to sustain life. But Nelaton and Campbell and Johnston and Beylard and Herbert, by a consentaneous effort, quickly inverted the body a third time, thus throwing all the blood possible to the brain, and again they began their efforts at artificial respiration. It seemed to me that she would never breathe again; but at last there was a spasmodic gasp, and after a long while, there was another effort at inspiration, and after another long interval, there was a third; they were 'far

between;' then we watched and waited and wondered if there would ever be a fourth; at length it came, and more profoundly, and there was a long yawn, and the respiration became tolerably regular. Soon Dr. Beylard says, 'I feel the pulse again, but it is very weak.' Nelaton, after some moments, ejaculates, 'The color of the tongue and lips is more natural.' Campbell says, 'The vomiting is favorable: see, she moves her hands; she is pushing against me.' But I was by no means sure that these movements were not merely signs of the last death-struggle, and so I expressed myself. Presently Dr. Johnston said, 'See here, doctor; see how she kicks; she is coming round again;' and very soon they all said, 'She is safe at last.' I replied, 'For Heaven's sake keep her safe; I beg you not to put her on the table again till she is conscious.' This was the first and only suggestion I made during all these anxious moments, and it was acted upon, for she was held in the vertical position till she, in a manner, recovered semi-consciousness, opened her eyes, looked wildly around, and asked what was the matter. She was then, and not till then, laid on the table, and all present felt quite as solemn and as thankful as I did; and we all in turn grasped Nelaton's hand, and thanked him for having saved the life of this lovely woman."

The other communication on the subject was from Sir John Rose Cormack, who described a case in which the method had proved successful, although the patient remained for a much longer time in a precarious condition.

PATHOLOGY OF DECAY.

BY J. B. WHEELER, OF LAWRENCE.

Read before the Kansas State Dental Society, May 5th, 1875.

In writing on the pathology of dental caries, we at once recognize a subject which is fit for a volume instead of a sin-

gle essay or paper, and one which our ablest and best writers have discussed for nearly a century, and seem still inclined to present new theories and refute old ones, till it seems hardly possible to bring up anything new on the subject, and if it were possible the propriety might be questioned. We have had almost daily new and startling theories thrown before us of almost every variety of which a vivid imagination is capable, and still there is in the minds of the greater number of practitioners of the present day but a misty conception of the cause of caries of the human teeth. That we have made progress as specialists cannot be denied, but have we, as a class given the cause of the diseases which we treat, that attention and patient investigation which they deserve, and which it is our duty to do, or, have we been content to merely follow the mechanical part, simply treating such cases as occur in the rounds of daily practice, without thought or knowledge of the cause of such service being required? To the operator, devoting his time exclusively to the laboratory, and the daily rounds of active practice, it is not easy to see the intimate connection between general pathology and gold foil; but there can no longer remain a doubt, that upon a knowledge of the former most certainly depends much of the usefulness of the latter. Promptness in diagnosing, confidence in prognosing, and a course of treatment which the sequel will show to have been based upon knowledge and judgment, will give to the patient a feeling of entire confidence, and are the instigators of that feeling of self-satisfaction which is after all the fee of fees.

In the early history of dentistry we find very little of present value on pathology, and I think we are safe in saying that to Robert Arthur, in 1853, belongs the credit of the first work on dental pathology which can be termed scientific, and in 1869 Garretson made a valuable addition, in giving to both the medical and dental professions his excellent work on "diseases and surgery of the mouth, jaws and associate parts." While, at present, there are being printed in the Dental Cosmos, a series of papers on dental pathology and therapeutics from the able pen of Dr. Flagg, which are well worth careful study by the students and members of the profession.

After reviewing and noting progress made in the last twenty years, we readily discover a great stride in dental pathology from the ancient observers, and arrive at an era in which it is strangely interesting to make quotations from old writers, such as "the cause of tooth-ache is only known to God, and the cause of decay of the teeth is beyond the comprehension of man." Such questions as these, I am happy to state, are of the past and the present presents to us plausible theories on which to treat and prevent those abnormal conditions of the teeth, the causes of which were formerly supposed to be known only to the deity.

In dental caries, pathologically speaking, vital force plays an important part, and as we trace changes or periods of decay of the teeth from childhood to old age, how markedly we see the extent and amount of the one keeps pace as it were with the state of the other. Thus we see in those cases of prolonged fevers especially those of typhoid nature, the immense strides which caries almost always make. No doubt a great amount of caries in the teeth of young patients is due to the lack of vital force, which is brought about by our improved modes of living, the tendency of man in the last half century being to attain to respectability, or to that position in which he can live with the least exertion, and rear his children in comparative luxury, which is the precursor of a diminished or low state of vitality. Assuming that the teeth are a part of the vital economy, and necessarily under the domination of vital influence, we must recognize that all influences, tending to diminish vital action, must, affect first and most seriously such portions of the organism as are not absolutely essential to vitality, and as want of vital force at the time of formation and eruption of the teeth is felt, need we wonder at the immediate decay presenting itself in the teeth of this class of patients. From the time of the presentation of permanent teeth to about the twentieth year is conceded to be the most critical period which the denture of the comparatively healthy patient undergoes, on account of the constant draughts on vitality which go to give the patient growth, after the comparative completion of which there is usually a marked cessation of dental

caries, and also a general strengthening of the vital system. If the teeth are carried to the age of manhood, with perfect formation, and free from caries there may be expected comparative immunity from disease in after life. For many years it has been extensively conceded that the ordinary changes of temperature, as those to which the teeth are subjected in the ordinary food taking of civilized life, were the concomitants of immediate decay. That they are prejudicial to the welfare of the teeth, there can be no doubt; but their influence is beyond question indirect. The chemical theory of decay seems at once the most tangible of any which has been explained, since in almost every case of caries, experiment shows an acid condition of decomposing tissue, and this condition changing in proportion to the greater or lesser rapidity of diseased action finally diminishing in those cases of slow decay so as to be hardly perceptible.

This chemical change in active caries, is somewhat singular and interesting, Flagg says concerning it, "There is a decided difference which we find to exist between the ordinary chemical action of acids upon such salts and organic tissue as compose tooth structure and that action which results in caries, for it seems no less than entirely different. Frequent and long continued experimentation has failed, in almost every instance, to produce any result which could be considered as analagous to caries."

The direct action of acids coming in contact with teeth in the mouth produces a different result from true caries, as we often observe from the too free use of lemons, and the use of acid medicines often soften the enamel to that degree that it can be easily cut or scraped away, while after this operation leaving the tooth intact, and comparatively free from the dangers of caries, if properly polished, and the use of acids discontinued. The parasitic predisposing cause of caries is one on which there are at present many theories, and, beyond doubt, patient investigation and the microscope will accomplish wonders in this direction. But as yet there has been very little save startling announcements and gigantic theories, without the patient inquiry and research to maintain the grounds taken.

Treatment not coming under the head of pathology, I only wish to remark that the time is surely about to dawn when more general and constitutional means are to be employed to prevent caries than are now taken by the majority of dentists, and a time when to prevent an operation will be more appreciated by our patrons than at present are our most beautiful efforts.

Proceedings of Societies.

MINUTES OF THE OHIO STATE DENTAL SOCIETY.

The ninth annual meeting of the Ohio State Dental Society was held in the Council Chamber at Columbus, Ohio, Dec. 3d, 4th and 5th, 1874. The meeting was called to order by Dr. H. A. Smith, President, and opened with prayer by the Rev. Hutchins. The minutes of the previous meeting were read, amended, and ordered filed.

The Executive Committee reported through the Chairman, Dr. Rehwinkle, and their report accepted. On motion of Dr. Rehwinkle, Thursday evening was set apart as a time for hearing the report of the Committee on Dental Patents, and for the consideration of this subject—motion carried.

The Committee on Membership, Publication and Ethics, asked further time—granted.

Dr. Rehwinkle asked what had been done concerning the publication of a list of all the dentists in the State, giving their professional status. Dr. Taft replied, that the list had not been published, because the list of names furnished by the Judici-

ary Committee was imperfect. The subject was discussed by Drs. Rehwinkle, J. Taft, Porter, Butler, R. G. Warner, Williams, J. H. Warner, C. R. Taft, Keely, and Whinery. Dr. Rehwinkle then moved that Dr. S. M. Porter be appointed Chairman of the Judiciary Committee, and given power to appoint an assistant in each Congressional District in the State, to assist him in completing this list of names. The motion was amended by Dr. Taft, giving this Committee the privilege to report at such times as they may think best, after consultation with the Publishing Committee. Motion adopted.

Dr. J. Taft moved that an appropriation not to exceed fifty dollars be made to defray the expense incurred by publishing this list of names. Motion adopted.

Drs. M. Wells, of Indianapolis, and J. R. Clayton, of Shelbyville, Indiana, were on motion of Dr. Keely, elected honorary members of this Society.

Dr. Rehwinkle moved that Dr. Emminger be appointed a Committee to convey the thanks of this Society to the Mayor and other City Officials of the City of Columbus, and invite them to attend the Sessions of this Society. Drs. Rehwinkle and W. P. Horton were added to the Committee.

Dr. J. Taft moved that the following hours of meeting and adjourning be observed: Morning sessions, from 9 to 12 o'clock; afternoon sessions, from 2 to 5 o'clock; evening sessions, from 7½ to adjournment.

FIRST DAY, AFTERNOON SESSION.

Society called to order by the President, Dr. H. A. Smith. Minutes of morning session read and approved.

The first subject for discussion: "Preservation of the Pulp of Teeth" was then taken up for discussion. This subject was classified as follows: "Systemic conditions, modifying treatment and influencing its results. The least injurious and yet efficient agents for covering and protecting dental pulp, and likewise promoting the formation of new (secondary) dentine. Causes of failure."

This subject was very fully discussed by Drs. Butler, Watt, Rehwinkle, J. Taft, Wells, J. H. Warner, Clayton, W. P. Horton, Porter and Jennings.

Dr. I. Williams, Chairman of Committee on Membership, reported the following persons as suitable for membership:

Frank A. Hunter, Cincinnati; F. W. Sage, Sandusky; A. L. Brown, Chillicothe; J. M. Whitney, Cleveland. On motion the Secretary was instructed to cast a ballot in their favor, and they were elected. On motion, adjourned.

FIRST DAY, EVENING SESSION.

Society called to order by President, Dr. H. A. Smith. Minutes of afternoon session read and approved.

Dr. A. J. Douds, of Canton, was presented by the Committee on Membership, and elected.

The second subject: "Contour Fillings," was then taken up for discussion. This subject was classified as follows: "The conditions and circumstances demanding this kind of fillings. Failures and their causes."

This subject was freely discussed by Drs. Beaman, Keely, Hunter, Williams, J. Taft, Butler, Rehwinkle, Clayton, French, Buffett, Whinery, Jennings, Watt, and W. P. Horton. On motion, adjourned.

SECOND DAY, MORNING SESSION.

Society called to order by President Smith, and opened with prayer by Rev. Stedham.

On motion of Dr. Butler, the third subject was passed, and the fourth subject for discussion "Practical views and results of experience in the use of the various preparations of gold for filling teeth," be taken up.

This subject was classified as follows:

Cohesive gold—Is it as much used as formerly? Non-Cohesive gold—Reasons for preferring it to cohesive.

The discussion of this subject was opened by Dr. J. Taft, who was followed by Drs. Whitney, Rehwinkle, Butler, Beaman, Whinery and Horton.

President Smith announced the following gentlemen to conduct clinics, Thursday afternoon: Drs. Jennings, Keely, Beaman, Rehwinkle, Clayton, J. Taft and Emminger.

The third subject, "Status of Mechanical Dentistry," was taken up.

This subject was classified as follows:

Can the mechanical branch be rescued from its demoralized condition, and be raised to a higher and professional standing?

The best means for the accomplishment of this. Has the time arrived for the separation of the operative or surgical, from the mechanical department? Advantages and disadvantages of such separation, to each department.

This subject was opened by Dr. H. A. Smith, who read an essay on the subject. This essay included his retiring address as President. The subject was further discussed by Drs. Porter and Rehwinkel.

On motion of Dr. Taft, the fifth subject, "The best and most skillful method of applying the Rubber Dam" be discussed in connection with the Clinics to be held this (Thursday) afternoon. Adjourned.

SECOND DAY, AFTERNOON SESSION.

The first part of the afternoon was spent in demonstrating the Rubber Dam, and in examining instruments exhibited by Drs. Butler, Evans and J. H. Warner.

Prof. J. Taft demonstrated the use of a preparation for relieving the pain caused by excavating sensitive teeth, prepared by Drs. Cram and Melcher, of Chicago, called "Dental Pain Ob-tunder." Prof. Taft, by using this remedy, succeeded in excavating a large cavity without giving pain, that was very painful, when only cotton was applied, before this remedial agent was used in the cavity. Dr. Taft said he had used this preparation several months and found it all he could wish in making excavating a painless operation.

The Society was then called to order by President Smith, and on motion of Dr. Keely, the name of R. H. Boal, of Urbana, was favorably received, having been recommended by the Committee on Membership, and he was elected.

On motion of Dr. J. Taft, Dr. W. M. Herriott, of Indianapolis, was elected an honorary member of this Society. Dr. J. Taft then spoke of the importance of the use of the microscope, and exhibited several instruments to the Society. He was followed on the same subject by Dr. J. M. Whitney.

Dr. Jennings read a paper describing a very interesting case which resulted in a lady losing her tongue, as a result of suppuration.

This case was discussed by Drs. J. Taft, Jennings, Watt, Butler, and J. H. Warner. The paper of Dr. Jennings was referred to the Publishing Committee. Adjourned.

SECOND DAY, EVENING SESSION.

Society called to order by President Smith.

Dr. Jennings stated a case of malformation of teeth resulting in periostitis, and asked for advice on the subject. Dr. J. Taft presented his theory and mode of practice.

D. Rehwinkle, Chairman of the Committee on Dental Patents, submitted his report.

In addition, a lengthy letter was read from Messrs. Cox, Follett and Cochran, relative to the legal status of the Rubber Litigation. A statement was made that S. S. White, of Philadelphia, was ten thousand five hundred dollars out of pocket in his defence of the Rubber Suits, and that the test case, known as the "Smith case," which was decided against the dentists, in Portland, Maine, had been appealed to the Supreme Court of the United States, and is now waiting its turn on the calender for trial.

Dr. Rehwinkle stated that the question at issue between the owners of the Cummings' Patent and the dentists is, whether the rubber plate is legally a new article of manufacture in connection with the question of abandonment by Cummings of his invention.

Dr. W. M. Herriott stated a case of gross swindling on the part of the Rubber Co., against a dentist in Indiana.

On motion Drs. C. R. Taft and J. B. Beauman were appointed a Committee to audit the accounts of the Committee on Dental Patents, and report to-morrow morning.

The subject was further discussed by Drs. Horton, Rehwinkle, Brown and Smith.

The following resolution was offered by Dr. Rehwinkle, and adopted:

“ *Whereas*, The Goodyear Dental Vulcanite Co. and Josiah Bacon, in circular dated Dec. 1st, 1874, and addressed to the Dental Profession, states among other things, that ‘the Publisher of the Dental Cosmos,’ has been engaged for several years past in advising in that magazine a course of litigation, which for some strange reason has been unfortunately followed by a great number of your profession.”

This Association declares this statement to be contrary to the facts, and hereby testify that whatever Dr. S. S. White has done in connection with the rubber litigation, has been done by him in the interests, and by express solicitation of the Dental Profession, and we hereby tender him again our thanks. We furthermore request him to continue in the good work, and bring the case, now pending before the Supreme Court of the United States, to its final hearing, we pledging him material support.

On motion of Dr. Beauman the Committee on Dental Patents was re-appointed. This Committee consists of Drs. Keely, Williams, H. A. Smith, W. P. Horton and F. H. Rehwinkle. The thanks of the Society were, on motion, tendered this Committee for past labor. Dr. Keely then reported the results of his labor in collecting money for the Barnum fund.

Dr. Keely made an appeal to the members of the Society who had not paid anything in support of this “Barnum Testimonial Fund,” to do so at once.

Dr. Taft moved that an assessment of ten dollars (in addition to the assessment made last year,) be made upon each member of the Society, for the purpose of defraying the expense incurred by the Committee on Dental Patents in defending suits brought by the Rubber Co. against dentists. Motion adopted.

On motion of Dr. Rehwinkle, the Treasurer was instructed to use his own judgment in collecting money assessed for the use of Committee on Dental Patents.

On motion of Dr. Whitney, a resolution of thanks was tendered Dr. Halderman for an invitation to visit the State Penitentiary to-morrow (Friday) morning. Adjourned.

Feb-3

THIRD DAY, MORNING SESSION.

Society called to order by President Smith.

The following bills were read, and ordered paid:

G. W. Keely, for Treasurer's Book, \$3 50; Executive Committee, for printing circulars, \$7 50; Secretary's bill for services and printing, \$48 00; F. W. Sage, for reporting proceedings, \$30 00; Janitor of Council Chamber, \$10 00; Executive Committee, to printing, \$2 00.

The Treasurer's report showed that he had received during the year \$999 42. Paid out during the year \$712 24. Balance on hand of \$287 18,

The following officers were elected for the coming year:

President, Dr. C. R. Butler; Vice-Presidents, Drs. C. R. Taft and A. F. Emminger; Corresponding Secretary, Dr. Frank A. Hunter; Recording Secretary, Dr. J. N. Porter; Treasurer, Dr. G. W. Keely.

Drs. J. Taft and F. H. Rehwinkle were elected Members of the State Board of Dental Examiners for three years.

On motion, a vote of thanks was tendered the Press and Clergy of Columbus, for their kindness during the meeting.

Dr. C. R. Butler, the President elect, was conducted to the chair by Drs. Herriott and C. R. Taft. He returned thanks for the honor conferred; and expressed a hope that the relations between himself and all the members might be of the most pleasant character, etc.

Dr. Butler then announced the following appointments on the various Standing Committees for the coming year:

Executive Committee—F. H. Rehwinkle, J. H. Warner and D. R. Jennings.

Membership Committee—A. F. Eminger, A. L. Brown and J. C. Whinery.

Publishing Committee—J. M. Porter, J. Taft and J. B. Beauman.

Committee on Ethics—G. Watt, G. R. Warner and W. R. Lilly.

The Committee on Ethics reported two cases of violation of the Code of Ethics. These cases were referred back to the

party who made the complaint, and to the Committee on Ethics. with instructions to report at next annual meeting.

The Secretary of State Board of Examiners reported that the Board had received on account of examinations during the past year, \$225 00. Expense for past year, \$230 25; leaving a deficit of \$5 25, for which amount an order was given on Treasurer of State Society.

Dr. R. H. Boal offered the following resolution which was adopted:

“Resolved, that the Committee on Dental Patents be authorized to draw on the Treasurer for any funds in his possession, if in their judgment it is necessary to forward the work of the Committee.”

Dr. W. P. Horton, Secretary of the State Examining Board, submitted the following as a report of their work for the past year:

TO THE OHIO STATE DENTAL SOCIETY.

Gentlemen:—Your Board of Examiners begs leave to make the following report, viz:

In view of the modification of the law regulating the practice of dentistry, in this state, your board did not feel warranted in holding a semi-annual meeting, so that there has been but one meeting since the annual meeting in 1873.

This began its sessions on the first day of December 1874, at twelve o'clock, noon, at the Neil House, in the City of Columbus.

Six candidates presented themselves for examination. Of that number, three were found qualified, to whom certificates were granted, as follows: William S. Caris, Kent, Portage County; George W. Dills, Mansfield, Richland County; William T. T. Wallace, Cadwallader, Tuscarawas County.

Herrmann Wilde, from Germany, was examined at a special examination by Drs. J. Taft and H. A. Smith, and their favorable report confirmed by the board and a certificate granted.

There has been, since the law, under which we are acting, was amended in the Spring of 1873, a disposition on the part of some new beginners, and their friends, to evade its present

provisions. What policy (if any) shall be adopted in view of this fact will be left for your wisdom to dictate.

Respectfully submitted,

W. P. HORTON, Sec.

J. TAFT, Pres,

Drs. C. R. Taft and J. B. Beauman, the Committee appointed to audit the accounts of the Committee on Dental Patents, reported that they had carefully examined the accounts in detail, and all vouchers for expenditures, and find the same correct. Prof. J. Taft offered the following, which was adopted:

"In view of the fact that a few instances have come to the Board in which it would seem desirable to make a remission of certificate fee, therefore,

Resolved, That the Board of Examiners be authorized to exercise discretionary power in such cases, reporting them to the Society, except the name of the applicant.

Drs. F. A. Hunter and J. C. Whinery, Committee appointed to audit the accounts of the Treasurer, reported the same correct.

The subject of Dental Hygiene was discussed by Drs. Taft, Horton, Whinery and Rehwinkle, and the Society adjourned to meet on the first Tuesday in Dec., 1875.

J. M. PORTER, Sec.

REPORT OF DISCUSSIONS BEFORE THE OHIO
STATE DENTAL SOCIETY, COLUMBUS,
DECEMBER 2d., 1874.

Continued from page 52.

Dr. Butler: What are the best agents to be employed in covering the pulp?

Dr. Taft: It is impossible, at present, to name the agent which best answers the purpose in all cases. The aim in attempting to preserve the pulp should be to place it as nearly as possible in its original condition. Cover it with some ma-

terial which will not be decomposed, anything that may be brought in contact with it. It must of course be a non-conductor and a non-irritant. I do not know anything better than the materials which have been suggested. It is important that we have faith to inspire us and a desire and determination to succeed—and a love for the work. The man who does not love his profession can not do justice to those who apply to him for his services. I sometimes hear dentists say “I don’t like the practice of dentistry.” The sooner such men abandon the profession the better for themselves, the profession, and the public. There is another difficulty which we meet, viz.: the lack of appreciation on the part of the patient. While we are stimulated to put forth our best efforts for those who manifest an interest in our efforts, and who highly appreciate their teeth, who of us has the heart to work for one who cares little whether we succeed or not, who will not consent to suffer inconvenience, or pain if needs be, that the best results may be obtained? Necessarily in such cases there will be failure. The matter of fee or pecuniary reward should not be the controlling thought of the dentist in his work. This should be put as far in the background as possible. Let the controlling thought be, how can I do the greatest good; success usually brings its reward. There are a few who justly appreciate their teeth. There are a great many who half way appreciate them. There is an innumerable host who care nothing at all about them. They would rather sacrifice their teeth than to suffer pain or even inconvenience for their preservation. In treating the exposed pulp, the manipulations should be very delicately and carefully performed. I think there is fault many times in the manner of manipulation. If the pulp is in condition of health its demand is to be let alone. Prevent the access of irritants to it. I have often filled up the cavity with very finely pulverized charcoal, to neutralize and absorb any noxious gasses. The charcoal will not irritate the pulp if it is very finely pulverized. In regard to the lacto-phosphate of lime treatment I like it very much. I doubt whether it is entitled to the credit which has been claimed for it as an agent in promoting the formation of secondary dentine.

Dr. Watt: What is its *modus operandi*?

Dr. Taft: I do not know certainly.

Dr. Wells, of Indianapolis: Mr. President, I am not much of a theorist. Am inclined to hold to the old mode of practice—using gutta-percha for capping after securing favorable conditions for the operation. I suppose one reason why I prefer that agent is that I have a tooth filled in that way. I always think of it when I fill over an exposed nerve. One objection which I have to the *os-artificiel* is the pain which it causes. Have not tried the lacto-phosphate of lime. I admit the importance of saving the pulp. It has been observed by every dentist that the tooth is liable to break down after the pulp is dead; I will agree to all that has been said as to the importance of preserving it. But as to the theory of bringing the pulp into proper condition, that has very little to do with the subject.

Dr. Keely: Perhaps the gentleman will give us his method of using gutta-percha.

Dr. Wells: I take the gutta-peacha in pieces large enough to fill the orifice of exposure entirely. Sometimes I introduce two or three pieces. I warm it so as to make it plastic, and then press it down gently to the nerve. I do not usually hurry the operation. I think it is well, when it is first pressed down to let it cool a little. After it has become somewhat hard I press it against the walls of the cavity with a warm instrument. I am careful not to allow the heat to penetrate to the nerve.

Dr. Jennings: Do you ever experience trouble after this operation?

Dr. Wells: Yes, I take the filling out if there is any pain. I tell the patient to come back the next day. Of course if you should press too hard upon the pulp in introducing the filling you would be likely to have trouble.

Dr. Taft: I must protest against what we are naturally led to infer from the first statement of Dr. Wells. He seems to think that whatever operation can be performed in his own case could be performed in any other. That is a great mistake. He is a man of great vigor and physical strength.

The same operation performed for the majority of persons would probably result in failure. The method is objectionable in two or three respects.

Dr. Watt: I would like to know how lacto-phosphate of lime acts. I want some one to tell us just how it operates. You all know how nitric acid, nitrate of silver, etc., act. I do not like to work in the dark. I have a theory. Correct it if it is wrong. The lactic acid is a solvent of almost all animal tissue. Dead tissue is much more easily dissolved than living tissue. The morbid tissue has less vitality than the normal, and consequently it is much more easily dissolved. In inflammation of an exposed pulp there is plastic matter thrown out, this becomes an irritant to the pulp. I think this the lactic acid dissolves out that vitiated matter. Then if there is putrefaction or disintegration going on, ammonia is one of the results. The lactic acid may neutralize that. All that is merely guess-work with me.

If it is in order, I will tell those who prefer a gutta-percha cap, a mode of preparing it. Take a long phial, fill with chloroform, and drop in shavings of gutta-percha as long as it will dissolve. Let it stand, and there will rise a porous looking matter which contains all the foreign substance. At the bottom you have a whitish looking clear liquid. Save that for use. Keep the phial containing it well corked. In capping the pulp drop a little of this preparation from a blunt instrument, and when the chloroform evaporates you have a cap which will not shrink.

Dr. Horton: Mr. President, I think that Dr. Cravens, who has brought to notice the use of lacto-phosphate of lime, was formerly a pupil of Dr. Watt. In the paper which he read here last year, he told us how he was led step by step to the conclusions at which he arrived finally, in regard to the action and effects of the agent mentioned. I can not now recall the substance of the paper. I do not know whether the gentleman himself would be able to explain its *modus operandi*. The theory as proposed by Dr. Watt is so beautiful and so captivating, that unto this present moment it is my hope that it may prove correct. I do not think that the prac-

tice has advanced far enough yet to enable us to come to any definite conclusion as to its mode of operating. Do not know of any one who is better qualified to correspond with Dr. Cravens on the subject than Dr. Watt.

As to the idea of inducing a deposition of secondary dentine, it is my conviction that if conditions are favorable, and there is nothing in the system—in the blood—to interfere; that the pulp has in its own organization the means of throwing out new dentine for its protection. We find this throughout the whole organization. We find a successful effort made by nature in the case of a wound made in the tusk of the elephant. I think the same thing occurs in the human teeth. The difficulty is in our mode of life. But I have no doubt that in vigorous, robust constitutions, there is recuperative power in the pulps of the teeth to effect such protection.

[To be continued.]

Editorial.

PERSONAL.

It is with much gratification that we learn, that Dr. C. W. Spalding, of St. Louis, has, after an absence of about seven years from the ranks of the dental profession, again entered upon the practice. The Dr. has undoubtedly all the while felt the attraction to his first love, and it became so strong that on the first day of 1875, he was drawn in.

We know that the Dr. will be most heartily welcomed into the profession again. As an honorable, high-minded and most successful practitioner he was known throughout this country, and indeed throughout the world where dentistry is known. Long may he occupy his present position, and never again forsake his first love.

OHIO DENTAL COLLEGE ASSOCIATION.

The annual meeting of the Stockholders of the Ohio Dental College, and others interested, will be held in the College on Tuesday, March 2d, at 2 o'clock, p. m.

It is desirable that there be a full and prompt attendance, so that the business may be at once dispatched. There is important work for the body to do at every annual meeting. Now, gentlemen, be on hand at the hour.

COMMENCEMENT.

The Commencement Exercises of the thirtieth annual session of the Ohio Dental College will be held in the College, in this city, on Thursday, March 4th, at 7 1-2 o'clock, p. m. The annual address will be delivered by Dr. Joseph Richardson, of Terre Haute, Ind., and formerly Prof. of Mechanical Dentistry, in this Institution. A cordial invitation is extended to all interested to be present.

MISSISSIPPI VALLEY DENTAL SOCIETY.

The thirty-first annual meeting of this society will be held in the lecture room of the dental college in this city, beginning Wednesday, March 3d, at 10 o'clock, a. m. We hope to meet a large number of the profession on that occasion. This is the oldest dental society in the world, but it is more vigorous than in its youth; and is more efficient than ever before.

The Executive Committee have prepared a good programme for papers and discussions. There will most probably be quite a number of good papers on the various subjects. We append the subjects selected, which we feel assured will be a strong inducement to all within reach, at least, to be present.

SUBJECTS FOR REVIEW AND DISCUSSION BEFORE THE MISSISSIPPI VALLEY DENTAL SOCIETY, MARCH, 3d, 1875.

1st. Is it good practice to extract teeth from a crowded denture to prevent or arrest decay upon the proximate surfaces of the teeth?

2d. Irregularities of the teeth; description of cases; methods of treatment.

3d. Sensitive dentine; treatment; topical applications, their relative efficiency and mode of action.

4th. Dental hygiene; food in its relation to the development of good teeth.

5th. Dental education.

6th. The relative position of operative and mechanical dentistry.

7th. Filling teeth; comparative value of different materials; description of methods of operating.

8th. Treatment of dental pulps for their preservation.

9th. Mechanical dentistry; the relative merits of celluloid and rubber as a base for artificial teeth.

Upon several of these subjects it is probable that essays will be written. We hope the members will all come prepared to contribute something of interest to the meeting. By a little *thought* and *preparation*, the usefulness of all our societies may be much increased.

BIBLIOGRAPHICAL.

Below we give the notice of a forthcoming work that will doubtless be of considerable interest to many in the profession. It is being prepared under the auspices of the Michigan Dental Protective Union, by the Hon. C. C. Burt, of Jackson, Mich. There is an immense amount of material for such a work, and the skill and labor will be displayed more in rejecting than in appropriating.

Let the pith and kernel be retained and the hull and chaff thrown away.

It would be well, in such a work, to have included the conclusion of the contest, if it is ever to be concluded.

The dentists in Michigan have taken up this contest in earnest, and if they go on as they have started they will certainly make a point somewhere. They feel deeply aggrieved by the course pursued by the Court in the case recently tried in Detroit, and their grievances doubtless have a foundation somewhere.

We should be glad to see the profession of Michigan unanimously decide to discard forever rubber for dental purposes, and be done with the intolerable nuisance. They would thereby secure the admiration and thanks of the entire profession, and many others would doubtless immediately follow. They are all bound together in their "Protective Union" and have the power to do or not to do.

"HISTORY OF THE DENTAL LITIGATION IN AMERICA, With the records of the Wetherbee, Newbrough, Gardner, and other cases, as presented in the Smith case, the Root case, and the celebrated Willis' Michigan case, together with briefs, pleadings, proofs, arguments of counsel, opinions thereon of the several Courts of the United States sitting in equity, as well as the several criticisms by Dental and other Journals, containing a short but full history of the production, importation and valuable uses of Rubber, as well as a certified copy of all patents issued thereon, or growing out of its use, in dental business in England, Brussels, France, and America, with copious extracts from dental and scientific journals during the last thirty years, with forms and directions for compounding and molding all kinds of dentures cast or formed in a matrix, with much other valuable information for everybody. Published under the auspices of the Michigan Dental Protective Union. Written and compiled by Calvin C. Burt, A. M., Counselor at Law."

MARRIED—By Rev. W. G. March, Dec. 31st, 1874, at the residence of Mr. Sam'l Woods, of Union Township, Union Co., Ohio, Dr. Henry W. Morey, Marysville, Ohio, and Miss Clara A. Woods.

“WHAT ABOUT THE RUBBER BUSINESS NOW?”

This question comes to us so often, and so earnestly, that we should like to answer it if we could; but really we don't know much about it, and should care a great deal less, were it not that some of our professional brethren are in such deep tribulation about it, that our sympathetic nature, rather leads us to help them weep, but it is really more through sympathy than grief. We never see a fellow being in real trouble, that the heart does not go out to him and desire to help him.

In the present status of affairs the Rubber Co. seem to have it all their own way, at least so far as decisions in the courts are concerned; but there seems to be some dissatisfaction, because the district courts hang together; but they are compelled to do it, so says Judge Emmons. “Jist so Judge.”

The Rubber Co. have their agents on the wing everywhere, gathering or attempting to gather what they regard as the fruits of a great victory. But such success as they desire is not attending their efforts. A great many in the profession are refusing to take license; and many who have till now used it are abandoning its use; and all are seeking a substitute, and the present indications are, that in Celluloid it is found. This material is having a rapid introduction; nearly all the better class of practitioners who are doing much in artificial dentures are testing it, and the report from nearly everyone, thus far, is, that it is as good if not better than rubber. Our observation and experience seem to confirm the latter view. We have examined many cases in which it has been worn from two months to three years, and have yet to find a case in which the mucous membrane is irritated by the presence of the plate, unless there was undue pressure at some point. In the use of rubber plates, there is, in the majority of cases, more or less irritation of the mucous membrane, and in many instances to a marked degree; and that too without undue pressure. As to the cause of this irritation there is a diversity of opinion, but the fact is plain to every close observer. Upon this we may give an opinion at another time.

To any who acquaint themselves with the present method, Celluloid is as easily wrought as rubber. If Celluloid is found, upon proper trial, to be no better than rubber for dental plates, we shall condemn it just as strongly.

There are some important views of this subject that have been kept too much in the back-ground. The great blessing conferred upon mankind by the introduction of rubber for artificial dentures has been largely expatiated upon by some in the profession, such persons usually close their eyes to any other view of the subject, and usually content themselves with the assertion that. "It is a great blessing." If we were going to examine the subject, we might ask; to whom is it a blessing? Is it so to the thousands and tens of thousands of people in this country who have been induced, by the feature of cheap dentures, urged by quacks and scoundrels, to sacrifice millions of priceless teeth that would with proper care have performed their functions during life?

Is it a blessing to those who, in view of the cheapness of artificial dentures, neglect their natural teeth till they are injured, diseased and ruined? Is it a blessing to those who, from ruthless extraction of the natural teeth, have the face and features irreparably marred and distorted for life? Is it a blessing to those, the beauty, harmony and attractiveness of whose speech is impaired beyond recovery? Is such a loss in any sense compensated for by the possession of a *new beautiful* ten dollar set of artificial teeth on rubber? Is it a blessing to those who, having a partial set of teeth on rubber, jeopardize by its bad influence the health and preservation of a number of good, healthy and useful natural teeth? This has occurred and is occurring in multitudes of cases. Partial dentures on any material, without great care are injurious to good natural teeth; but those constructed of material, the tendency of which is to produce a diseased condition of the mucous membrane and a vitiation of the oral secretions, are doubly so.

Is it a blessing to the dental profession to have a host of incompetent pretenders thrust into its ranks, whose influence, so far as they have any, is to drag the entire profession to their own low degraded level? We have often heard the very

best and most efficient in the profession classed with just such as we have here referred to.

Is it gratifying to the student, who with an honorable purpose of devoting from three to five years of his best energy and effort to prepare himself for the practice of an honorable and useful profession, to learn that others are sent out with from four to six week's instruction, who will assume to do all that he ever expects to be able to accomplish? Is it a blessing to the student, who enters upon his course of pupilage with the honest intent of doing all that is necessary, to find that after having spent two or three years, and is pronounced complete by his preceptor, he knows nothing of dental prosthesis except the method of constructing artificial dentures upon rubber? Nine-tenths of all who have entered the practice of dentistry within the last twelve years, know nothing of the methods of making artificial denture with anything except rubber. Many dentists, and some who have been in practice for quite a number of years have told us that they never even saw a denture made on metal plate.

A far larger relative proportion of quacks and incompetents have invaded the dental profession during the last twelve years than ever before; and this too during a time when far greater effort has been exercised by the profession for its education and elevation than before.

Now we do not charge all the quackery in the profession upon the introduction of rubber as a base for artificial teeth; but a large share of it is in existence because it is possible to take any boy or young man of ordinary capacity, and sometimes the veriest dunces are selected, and teach him in four weeks to make a set of teeth on rubber, that will compare with the slop-shop work that is done in one-half of the offices in the country. (And also to stuff teeth with amalgam).

Now this opportunity did not exist before the introduction of rubber. Though there were some who started out on a very short term of pupilage, but it was utterly impossible for them to attain anything like the success that this class now do, and they did not exhibit the audacity that now attaches to the self-constituted dentist.

In those days the principal stock in trade of the empirics was amalgam with the addition of a moderate amount of assumption. The quackery of those days was by no means as intrusive and dangerous as that, that prevails now, which has for its corner-stone and cap-stone too—*Rubber Dentistry*.

THE DENTAL PAIN OBTUNDER.

We are often asked, "How about *Dental Pain Obtunder* now?" And in answer will say, that it does all that has been claimed for it, and even more. It is by far the most efficient agent for reducing hypersensitiveness of the dentine that we have used. In our practice, in a large majority of cases, it relieves the sensitiveness entirely; in a few cases it does not produce a complete relief; but in all cases it so far relieves as to make the operation of filling admissible, and that too without drawing unduly upon the patient's endurance.

A few who have tried it, have said, that they find some cases in which it seemed to give no relief, and in others only partial, while in some its action was entirely satisfactory. Now there may be, and probably are, cases, that will not yield to this agent; indeed it would be remarkable if there were not. This may be the result of peculiar susceptibilities, or idiosyncrasies; or the peculiarities of some localities, climate or material, may modify its action. Or the method of application may have much to do, in some instances, with its efficiency. And here we will state that to give it proper facility for action, it should not be diluted, neither before it is put into the cavity nor afterward, and in order to secure the best results the cavity in which it is to be applied, should be protected from moisture, and made absolutely dry, this of course, can only be done, in most cases, with the rubber dam; this being done, moisten a lock of cotton or bibulous paper with the *Obtunder*, and moisten

the cavity throughout with it; usually the sensitiveness will pass away instantly, in other cases it will be more gradual, and occasionally it will be so tardy in producing the desired result, that two or more applications will be required. There is probably nothing to be gained by sealing it up in a cavity and keeping it there for any considerable time.

Our satisfaction in its use has been very great indeed; the success thus far with it, for this purpose, is beyond anything we had ever ventured to hope for, in the direction of therapeutic agents.

The questions will naturally arise in the minds of some, "What will be its ultimate effect?" "Does it produce, or is it liable to produce, devitalization of the structure to which it is applied?"

Our observation thus far, leads us to the conclusion that it does not produce, in any case, devitalization of the dentine. In most cases that have been examined after filling, some sensitiveness is present, as is indicated by thermal changes through the filling.

In some cases there is no apparent return of the sensitiveness, at least by the test just mentioned, and the presumption is that the tissue assumes a normal condition. In no instance have we seen anything that would indicate devitalization by the influence of this agent.

The value of this agent may extend further, in dental practice, than in the particular just referred to. We have used it in a number of cases in the management of exposed pulp, with results that we have never attained with any other agent; about this, however, we will say something more when we have further experience.

For the past two months we have used it in nearly all cases of extraction, with apparently decided benefit. The method of applying for this purpose is simply with a napkin or bibulous paper wipe the saliva and mucus from the gum about the tooth, and moisten the surface with the Obtunder; the effect is instantaneous.

Well, we will reserve the remainder of our knowledge of the Obtunder till another time.

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[No. 3.

ABNORMAL CALCAREOUS FORMATION IN THE
HUMAN SYSTEM.

BY WM. TAFT.

The wood cuts accompanying this article represent a very singular solid ossific structure removed from the humeral region of a subject for dissection at the dental college the present winter. Its length is over four inches, its greatest breadth exceeds one inch, and is as shown by the illustration flat and jagged in its outlines and spongy in its internal parts. Situated in the lower part of the left upper arm—imbedded in the brachialis anticus muscle—it lay obliquely across from the inner to the outer side, the downward or narrow part resting over the trochlea of the humerus and making an articulation with it by a fossa-like depression, the joint being well supplied with inter-articular cartilage and firmly held in position by strong ligaments extending laterally to the condyles. This

location of the bone materially interfered with the flexion of the elbow joint, which could not be performed much beyond a right angle.

FIG. 1.

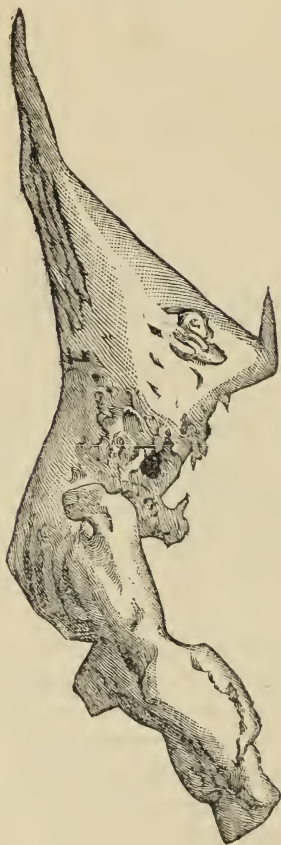


FIG. 2.



Fig. 1 represents the external surface, the upper part is broad and sends off two processes, one at each angle, the outer one being short, flat and hook shaped. The inner one longer, more rounded and broad at the base. The line from

tip to tip of these processes presents an irregular curve which corresponds to the convexity of the humerus and seemed to be gradually surrounding it. Upon this surface foramina, affording passage to minute nutrient vessels, are noticeable. At about the middle is a groove in which lay the ulnar artery in its downward course, and there also may be observed a small hamular process indicating the junction of the narrow and broad parts of the formation. Almost the entire inner border gave origin to fibres of the brachialis anticus muscle.

Upon the internal surface, fig. 2, there is nothing of particular note excepting the depression or articular surface at the lower end, previously alluded to, and the foramina for nutrient vessels as upon the external surface—it may be here stated that some of these vessels passed entirely through the specimen—the calcareous matter evidently having been deposited around them, forming canals of transmission. There is presented further in this arm an anomaly of the brachial artery, in sending off its principal branches, the ulnar and radial, just above the upper end of this bone and proceeding from thence to final distribution. So much for the description.

Of the history of the individual from whose body this formation was obtained little is known; it was a colored female whose death is said to have been caused by intemperance. The skull was of extraordinary thickness; the other bones were also greatly developed; and it is reasonable to suppose that the causes which tended to advance normal ossification to such a degree would also manifest itself in favoring the development of abnormal bony structures or calcareous concretions whenever the other conditions were favorable for their development.

Such deposits in the muscle—in which the present was found—would appear to have been the result of some injury to the soft parts in the course of life. The consequent change in the muscular tissue would probably give it the character which the periosteum exerts in the separation of phosphate of lime from the blood and in separating the excess of acid which renders the ossific matter soluble in organic fluids. Even the injuries which the periosteum sustains and the sub-

sequent developments by the recuperative powers of life increase the power of promoting ossification. Such an increased action of the power of the periosteum is of the greatest advantage in repairing the fractures of the bones and in the formation of a callus for establishing the continuity of the solid parts. In many cases the peculiar tissue called into existence in fracture of the bones, supply the ossific material so abundantly as to endanger the occurrence of anchyloses when fractures occur in the vicinity of joints.

Of the causes which gives tissues formed after injuries the power of eliminating phosphate of lime from the blood, it seems difficult to form any satisfactory opinion. It may depend on the number of cells generated from the plastic lymph, on their peculiar size or on their power of modifying or controlling vital forces. If we follow the custom of most physiologists and reason from the doctrine of final causes, the connections of these calcareous effusions with the organic growths succeeding injuries may be ascribed to the wise provision which exists in life for maintaining the integrity of the human frame and for averting the evils which threaten the existence. The effect of this provision is not confined to the union or the repair of broken bones, for it is probable even the infiltration of calcareous matter in certain tumors may have often a beneficial influence in preventing or retarding them from assuming a malignant form.

In modern times it has been customary for writers on human physiology and pathology, to collect facts from the entire range of the animal kingdom, in order to throw light on the vital phenomena of the human frame, and on the diseases to which it is subject. Between the formation of shells in lower forms of life and the productions of bones in animals of higher organization some relation may be based, though the difference between both operations is very great. While in our bones phosphate of lime is largely in preponderance, shells consist almost entirely of carbonate of lime, they are permeated by no vessels and the crystalline form which, in most cases the calcareous matter exhibits, shows that it must be regarded

as an excretion and that its deposition has little dependence on the operation of vital forces. Notwithstanding this, even shells have a provision similar to that of bones for the repair of fractures, the injured membrane and tissue supply an excessive effusion of calcareous matter, and it is said that the Chinese obtain casts in carbonate of lime by introducing metallic coins into certain kinds of shell fish (Molloscea) inhabiting their coast.

Why some should have the power of secreting calcareous matter and others devoid of the power is a question which involves much difficulty. Agassiz was the first to direct attention to the fact that the greater part of the fishes of the primitive geological ages had their vertebræ composed of unossific cartilage and that the phosphate and carbonate of lime was deposited abundantly in their scales, which from this cause are found in a good state of preservation with bright surfaces after having withstood destructive effects of an immensity of time. Even in the human frame certain causes may divert the supply of phosphate of lime which the blood affords from the bones to various localities. Ossification has been known to occur in the liver, the heart, and many of the other organs. The ossification of the arteries is common in old age and often has an important influence in bringing life to a close. Nearly every tissue in the body contains a small amount of phosphate of lime, and under peculiar derangements of the vital forces, there is an excess of it concentrated at certain localities and under rare circumstances this concentration is carried to such an extent as to lead to such formations as the one now under consideration.

These calcareous growths are also indebted for their existence to the nature of the aliment introduced into the system. It is well known that a large amount of phosphate of lime exists in milk and unbolted flour, and the use of such articles of diet may be expected to promote not only normal ossification, but also those irregular calcareous deposits which are due to some disturbance of the vital forces. Water supplied by wells and impregnated with a large amount of carbonate of lime has the same effect. The blood in its normal condition contains

soluble or acid phosphate of lime, and the introduction of carbonate of lime would favor the production of the basic phosphate which is insoluble and contributes to form not only the bone but also calcareous deposits and growths of an abnormal character. Of the other possible causes which may give rise to these morbid phenomena most are involved in such obscurity that it would be inadvisable at the present state of science to enter into a discussion respecting their action.

CHLOROFORM CONDEMNED.

BY J. HARDMAN, D. D. S., MUSCATINE, IOWA.

The question of the moral justification in the use of chloroform for general anæsthesia, in dental and surgical practice, has often had its claims forcibly impressed upon us. Should we, as a profession, having the entire control of the patients placing themselves unreservedly in our care for treatment, use so deadly and so treacherous an agent as chloroform has proven itself to be? For over twenty years since, we have ourself refused to use this agent for anæsthesia. Our convictions were, and remain the same, that no security against its fatal tendency is known; no reliable rules by which to select a subject exempt from its deadly influence; no antidotes efficient, or means of resuscitation deserving of much confidence.

We took occasion in a paper we had the honor to read before the Iowa State Dental Society in 1867, (and which was published in the DENTAL REGISTER of Jan. 1868) to state somewhat in detail our views in regard to this subject.

It is gratifying to see that the profession in the State of Massachusetts are moving in the right direction, as is indicated by the following clipping from the Press:

"The Massachusetts Dental Society has passed resolutions emphatically condemning the use of chloroform as an anæsthetic, and declaring any member administering it liable to expulsion."

This has the correct ring, and shows morality coupled with enterprise.

At the last meeting of the Iowa State Dental Society, we presented the following preambles and resolutions:

"*Whereas*, the frequency of death caused by the use of chloroform as an anæsthetic, is justly exciting apprehension and alarm in the people; and

"*Whereas*, after protracted years in its use, no security against its deadly tendency, either in the mode of its administration or selection of subject has been developed; and

"*Whereas*, no truly respectable profession should ignore the value of moral rectitude in practice, should with impunity hazard the lives of its patrons, or heedlessly disregard the intelligent warnings of statistical record; therefore

"RESOLVED, That we the members of the Iowa State Dental Society, condemn the use of chloroform for the purpose of general anæsthesia, and will refrain from so using it in our practice. And, moreover, we will use our influence to favor its entire expulsion as an anæsthetic agent."

The discussion of this resolution elicited the too prevailing fact, that many dental practitioners go forward without pausing to reflect as to the moral responsibility that should and must accompany the conduct of the dentist apart from mere expedience. The comparative exemption from legal accountability, in connection with its very general popularity, are cited as evidence that no great amount of crime can attend its use. But more frequent penalties such as was obtained by the estate of J. W. Lawrence, of Floyd County, Iowa, against Dr. C. C. Birney, in which the jury found a verdict of \$1,750 for malpractice, in using chloroform on the deceased to a fatal termination, will probably be the only means of arousing a just apprehension of this subject.

The above resolution was laid upon the table, and will again be called up, when, it is hoped, that our Society will place its

condemnation upon this sad practice by an unanimous vote, establishing by so doing its well merited position of dignified honor.

We have no especial object at this time save to put in the minds of the friends of true principle, correct conduct and dignified humanity in our profession to concentrate their efforts and influence to the breaking up of this dangerous practice in the use of chloroform.

We trust that at the dental conventions which may meet for deliberation during the present year, all may take a decided action in this matter, to the end that the showing will be emphatically in favor of abandoning its further use.

Proceedings of Societies.

REPORT OF DISCUSSIONS BEFORE THE OHIO STATE DENTAL SOCIETY, COLUMBUS, DECEMBER 2d., 1874.

Continued from page 92.

Dr. J. H. Warner: While the subject of Dr. Craven's discovery is before the house, I want to add my mite of information. Have had no experience in the use of lacto-phosphate of lime myself, but my brother has given it very careful consideration for two years. He was in correspondence with Dr. Craven at the time the discovery was made. He tested it thoroughly and abandoned the ordinary mode of practice for the method proposed by Dr. Taft. He says that the remedy had proved a failure in his hands until the time he

adopted Dr. Taft's method, since when, it has proved a flattering success. He first cleanses the cavity and then protects the pulp with a preparation of carbolic acid and phosphate of lime. After it becomes somewhat hardened he fills the cavity with oxy-chloride of zinc, and finally completes the operation with gold. According to the reports made at the Detroit Convention, that process seems to have given the best results.

Dr. Taft: A little explanation may not be out of place.

Dr. Cravens gave a caution in reference to the liability of the lacto-phosphate of lime to decompose. It is then, of course entirely unfit for use. Many failures are doubtless due to the use of the remedy after it has begun to decompose.

For several months I have been in the habit of keeping the two ingredients, lactic acid and phosphate of lime, separate, until I have had occasion to use them. Have had as good success with the remedy as with anything else. Dr. Reed, of Cincinnati, came to me some three months ago with the right inferior wisdom tooth decayed on the buccal surface. It ached severely. There was a complication of inflammation of the pulp and extreme periostitis. Tried lacto-phosphate, but it seemed only to aggravate the difficulty. In this case it failed. It was a very unfavorable one. In such instances, unless the natural recuperative powers are remarkably good, the tooth will be lost.

Dr. Rehwinkle: I have met with failure in such cases.

Dr. Clayton: I am interested in this matter which has been presented, and particularly so, because it shows a recognition on the part of the profession, of the fact that there is something yet to be learned in regard to the treatment of exposed pulps.

It is important, as we have learned, to consider carefully systemic conditions. We generally find congestion of the pulp when there is much pain. This must be relieved. To accomplish it I use an astringent. Sometimes you will find that an astringent only makes matters worse by choking up the passsages. When that occurs and there is a state of congestion accompanied by throbbing pain, I prefer to cut the

matter short by depleting the pulp. Then apply carbolic acid. I wait awhile, and if I have succeeded in securing perfect immunity from pain,—say for twenty-four hours—I feel that the case is hopeful. I then proceed and use carbolic acid and oxide of zinc, and then fill over all with oxy-chloride of zinc mixed as thick as possible. When there is inflammation of the pulp, our treatment, of course, sometimes fails. Sometimes I find the pulp engorged and protruding through the orifice of exposure. I cut away the part protruding and apply carbolic acid in full strength for its escharotic effect.

I have succeeded in several cases which I treated in this way. If we extract a tooth which has ached a very little, we will find that there is a very limited surface of the pulp which is congested. This indicates that it is practicable to save a portion of the pulp by sacrificing the part which is diseased.

In cases of recent exposure I fill the cavity with clean cotton, and melt wax upon it. One of the causes of failure, I think, is a lack of judgment as to when we shall fill, or perhaps, what we shall fill with. The important point is to know *when* to fill.

Again it is important to inspire the patient with faith. We must, ourselves, have faith. There is sometimes a lack of sympathy between the patient and the operator which acts as a barrier. There are persons for whom we can not work with any degree of pleasure. There is a mutual feeling of repugnance.

Dr. Horton: I cannot expect to enlighten these older gentlemen upon this subject. I would make a suggestion however in regard to an application to be used preparatory to the treatment recommended by Dr. Taft. This is the formula: Take one to one and a half grains of aconitine, put in a phial with an ounce of creosote. Apply to the nerve on a small bit of cotton.

Dr. Porter: Dr. Wells remarked that it does not make so much difference when we fill as with what we fill. I think he might have added that it matters much *how* we fill.

It is greatly to be deplored that some men persist in treating the exposed nerve with escharotics. I do not believe in

applying oxy-chloride of zinc to an exposed pulp. If you have a cavity which is sensitive merely, then apply it. But in cases of absolute exposure I would not in any case use it.

Some one has said that he does not know whether this preparation recommended by Dr. Cravens has a tendency to promote the formation of secondary dentine or not. I supposed always that the formation of secondary dentine is a natural phenomenon. It is a gradual process of the nerve diminishing and the dentine increasing. I think that is all there is of it. When I attempt to save alive the exposed pulp I use Hill's stopping, pressing it down with a bur-nisher.

Dr. Taft: Dr. Porter says he thinks the application of this material has nothing to do with the formation of secondary dentine. I am sure he knows better than that.

Apply pepsin to a pulp which is covered over with debris and it operates as an active solvent for debris and removes the diseased portion. The same result follows the application of lactic acid. The pulp is found to be free from the accumulations over it. The action of the pepsin and the lactic acid is perhaps the very same. At least in so far as it operates to remove the debris.

Dr. Porter: There seems to be an idea on the part of some gentlemen in the profession that the application of something over the nerve actually influences nature to deposit secondary dentine. I know very well that if you leave the pulp protected merely with a covering of paper it will not throw out secondary dentine.

Dr. Jennings: Dr. Taft, did you ever have a case of severe periostitis which did not result in the death of the pulp?

Dr. Taft: That complication is of very rare occurrence, but when it does occur the pulp almost always dies.

Dr. Rehwinkle: I have now a case under treatment in which the pulp of a central incisor was destroyed through the influence of an abscess in the lateral incisor. The central looked healthy but the lateral had the appearance of being dead. It had in it a large gold filling. I remarked, this

tooth (the central) does not look as if the nerve in it was dead. The other one does. Are you not mistaken? He said he thought not. To satisfy him I drilled through the lingual surface very carefully and found the nerve alive. I then took out the filling of the other tooth and found the nerve not only dead but sloughing. It now became necessary to protect the nerve in the central which had been tapped. I capped it. I then treated the lateral and got it ready to fill. The gentleman claimed all this time that the central was troubling him. I finally retapped it and found the pulp dead and discharging. I am satisfied that the trouble had been communicated from the diseased tooth to the healthy one.

Adjourned until Evening.

WEDNESDAY, DEC. 2D., 1874.—EVENING SESSION.

The second subject, "Contour Fillings," taken up.

Dr. Bowman: I am in the habit of making a great many contour fillings. Consider them very useful.

Frequently in the case of incisors which have been broken off, we can build up and restore the contour, and preserve the facility of speaking.

I will speak more particularly of the material to be used in effecting this object and of the manner of using it. I have been for quite a while using No. 60 foil. I do not know whether or not it is a fancy, but I think from what my judgment and experience have demonstrated, that I can do better work with it than with the lighter foils. I also find that I can work it more readily than I can the heavier numbers. No. 120 is a little more rigid under the instrument, but I can manipulate No. 60 about as readily as Nos. 5 or 6.

The President, Dr. Smith, here cautioned the gentlemen to adhere to the subject announced for discussion.

Dr. Bowman: I consider it far more advisable to restore the contour in the case of a broken tooth, than to cut it off for the purpose of fitting a pivot tooth, or to extract it. The appearance of the gold is to many eyes unsightly, but considering the superiority of the operation over other operations

which I have alluded to, I think that objection should be overruled. It shows an appreciation of the value of the natural organ on the part of the patient.

Every man in the profession is duty bound to save the natural organ when it is possible.

They are too often extracted.

The patient is enabled to use the tooth to much greater advantage if the full contour is restored, than he could if the filling be extended only over the edge of the cavity.

If a V shape space is left between the teeth the food crowds into it and irritates the gum.

Dr. Keely: In many cases broken down teeth can be restored to their former shape and made permanently useful. Of course the permanence of the operation depends upon the quality of material of which the tooth is composed. That is the highest art in our profession—we make the tooth useful, if not for a lifetime, at least for many years.

I recently saw a contour filling which was inserted by a New York dentist—his first attempt at a contour filling. It has done good service for ten years. It was filled with sponge gold. Is now in good state of preservation. I examined it critically with a powerful magnifying glass and found this to be so. The practice of making contour fillings should be encouraged, because the operator is often enabled to lengthen a broken off tooth indefinitely, so as to restore its antagonism with the tooth in the opposite jaw.

Dr. Hunter: It is only lately that I have been giving attention to contour fillings. I believe there are many cases where operations of this character can be made to answer a very good purpose. One of the great causes of failure, I think, is the attempting to do too much. One cause of decay with which we have to contend arises from the shape of the tooth. When decay takes place on the approximal surface of a tooth, it is due to the shape of the tooth. If you in that case restore the contour of the tooth you do nothing to prevent the recurrence of decay. There have been hundreds of contour fillings made which have failed in three or four years, because of decay occurring again either above or below the filling. Where there is plenty of room—where a tooth has been lost,

there by all means restore the contour of the tooth adjoining the space, if it be decayed.

Dr. Wells: I would like to ask Dr. Taft a question as to the practicability of restoring the contour of teeth which are worn down to the gums—either upper or lower incisors and cuspids. The nerve living but nearly exposed. I know of a number of such cases.

Dr. Taft: I can not answer that question very definitely without seeing the case. There are cases where it would not be advisable to attempt restoration. You must be governed altogether by circumstances. For instance, in a case where all or nearly all the teeth are standing in the mouth, and the superior and posterior teeth have all worn down almost to the gum. It would not be advisable to restore the contour of the anterior teeth and leave the molars unfilled. You must preserve the antagonism. Where the wearing away progresses slowly and the person experiences no special inconvenience, and it would be necessary to operate upon all the teeth, I should hesitate very much, but if the anterior teeth only are remaining they may frequently be built up. I have in a number of cases built up six, eight, or ten anterior teeth in each jaw thus throwing the jaws apart considerably and changing the articulation. This I have done in the cases of the upper and lower anterior teeth. But where the molar teeth remain it is a matter of very doubtful propriety, perhaps might not even be practicable. But I have built blocks or caps of gold in some cases upon six or eight anterior teeth and two or three molars. Judgment must be used in selecting cases. Many teeth are so frail that they will not bear the introduction of the gold. Again, teeth that are devitalized are often so deteriorated in quality or structure, that if a large gold filling, restoring the masticating surface, be introduced, the tooth afterward, under the strain of mastication breaks away and the filling is lost.

Dr. Taft alluded to a case in his own personal experience. Had a large contour filling inserted fifteen years ago in a tooth from which the pulp had been removed. The substance of the tooth so deteriorated that one wall recently broke away from the filling which still remained in position.

He continued: "Such will oftentimes be the condition of a tooth that a simple filling will last much longer than a contour filling. Aside from the mere question of expediency, there are objections urged by some people to the conspicuous appearance of contour fillings in the anterior teeth.

Dr. Taft then cited another case in his practice, of a gentleman whose upper teeth were quite worn away, even to the gums, and the lower teeth were loose; gums sore and painful. Used screws in the upper teeth and built on caps so as to throw the jaws apart. This relieved the soreness of the teeth above and below. None of the teeth were decayed. The condition of the gums also began immediately to improve.

Subsequently the lower teeth were built up in similar manner.

There then arose two causes of complaint. One was the peculiar, unnatural feeling observed by the patient upon occlusion of the teeth, a feeling which he pronounced to be so disagreeable that he thought he could never become accustomed to it. He was constantly sensible of the *metallic* feeling of the caps.

This impression gradually wore away. Afterward he complained of a burning sensation in the sockets of several teeth. This was relieved by dressing down the surface of the fillings a trifle where he complained of the trouble. Changes of the weather affect him greatly. This patient was of strong constitution; age sixty-seven.

Dr. Butler: It does not seem necessary to me to discuss the propriety of making contour fillings. I am aware that there has arisen, within the last year or two, a diversity of opinion in consequence of some new ideas.

Some parties ignore this modern mode of operating.

Dr. Taft has presented some of the advantages and disadvantages of contour fillings.

I think it is perhaps well to make some distinction between simple contour fillings and large fillings built up to restore a lost crown in restricting the use of the term to the former class.

In the case of decay on the approximate surface, for instance, where we restore half or any portion of the crown, I should call that restoration.

In many cases the spaces caused by decay upon an approximate surface are very annoying to the patient, and there is no way to relieve this excepting by making a contour filling. Much judgment is required to enable us to decide when to attempt restoration and when *not* to do it. We have seen cases of exostosis result from building up a tooth so as to bring undue pressure upon it in the act of masticating. We should bear in mind the fact that gold is an excellent conductor of heat, and might in some cases, be the means of exciting periosteal trouble. The trouble experienced in cases where teeth have been lengthened by filling, even the annoyance caused by occlusion and the peculiar dragging sensation caused by the contact of the fillings, is very similar to the difficulty which most persons have to contend with in becoming accustomed to a set of artificial teeth.

We could hardly conceive that a man sixty-seven years old could become accustomed to this difficulty. The trouble comes from a change of the working of the muscles. In attempting fillings of this class we should recognize the great importance of a firm anchorage, the shape of the cavity, etc., to insure a successful operation. If the walls of the cavity are thin they frequently break away after the tooth is filled. In the case of pulpless teeth, time works a destruction which is almost inevitable. Especially is this the case in young subjects.

Dr. Rehwinkle: The matter of contour fillings is one which is much abused. At the last joint meeting of the Mississippi Valley Association and the Missouri State Dental Society, there was represented on a blackboard an operation which had been performed in Connecticut. It was substantially a case of gold teeth. It showed that a great amount of patient labor and skill had been employed, but I question the taste of the operator who did it.

It is a peculiarity of Americans that they like a display of gold in their teeth. If you go to any foreign country you

will see the Americans pointed out as the people who wear gold in their teeth.

This taste for such display should be discouraged, we should be the educators to lead the people to correct views of the object of dental operations. If a man can weld gold into a cavity at all, it is only a question of time and patience how much he can add to it, and how far he can extend the filling. To encourage this class of operations merely for the opportunity it affords the operator to display his skill, is unworthy of any man who respects himself and his profession. In the case mentioned it would have been better in my judgment to have extracted the teeth if they could not have been fitted with porcelain facing or pivoted. That would have been more satisfactory to the patient and would have been in better taste.

But as to contour fillings, generally speaking, I approve of them. We must avoid extremes. In the case of bicuspid decayed on the approximate surface I would endeavor to preserve their shape as far as possible. The fact that a space left between these teeth affords lodgment for the food, is not in my opinion so great an objection. I expect my patients to clean their teeth. If the annoyance of the food pressing into the space will lead them to clean their teeth so much the better. A great deal more harm will result from restoring the contour in many such cases, than would result from leaving the wedge shaped space, especially if the operator neglects to notice how the antagonizing tooth strikes.

If the cusps of a bicuspid tooth in particular be built up too high, the antagonizing tooth may strike against the filling and it then has a tendency to force it out. It will not only force it out but it will frequently break the walls of the cavity away at the same time. In making operations of this kind, my practice is to first fill the cavity with adhesive wax or softened gutta-percha, and by means of it get the exact "bite" of the antagonizing tooth. After finishing the filling it may be necessary to grind it down some with the corundum wheel.

The filling should be inserted in such a way that the strain

upon it in masticating will not tend to force it out.

But again, I declare that I can not become reconciled to the idea of turning the mouth into a jeweller's shop. The perfection of art here as elsewhere, is in concealing art. The great object is to restore the tooth to usefulness.

Dr. Clayton: One of the causes of failure is the liability which Dr. Rehwinkle mentioned, of biting out the filling. We must take into consideration the laws of forces in mechanics, when making a contour filling, and learn to judge correctly of the amount of pressure which the filling will bear. Let the point next to the cervical wall represent the fulcrum, and the retaining points the weight to be raised. The force is applied at the distal surface of the tooth—the extremity of the filling. We have here an example of a lever of the second class. In making contour fillings in molars, I care not how strong the walls may be; I want good anchorage on the grinding surface. I would prepare the cavity by cutting across the tooth, and then drilling a hole at the end of the groove thus cut out. Then I have the weight and power very near the same point, so that it is almost impossible to force the filling out.

Dr. French: I am more inclined to speak of the causes of failure in contour fillings than of other points which have been considered, I think that failure is more frequently attributable to errors of judgment in preparing the cavity than to anything else. The anxiety of some operators, lest they should make a conspicuous filling, may lead them to avoid cutting away weakened enamel, which should be removed.

The cervical portion of the cavity is also often slighted. I have had opportunity to examine the fillings in cuspids, by many who are esteemed fine operators. Upon testing them with an excavator, have found them frequently defective at this point. This is the consequence of neglecting to cut down to a solid foundation.

As to retaining points I am utterly opposed to them, I believe in giving the cavity a retaining shape. We can all see the advantage of carrying the gold over the edges of the tooth.

Dr. Taft: The cases of failure are the result of not observing requirements in making the operation. If one fails in any particular in the successive steps of an operation, the result will probably be failure sooner or later. One cause of failure in many instances, arises from the physical incapacity or indisposition of the operator. We are not always in like good condition for undertaking difficult cases. Many times we attempt to operate when we should not.

Again: I think you will find that the very best operators are those who feel that they have the confidence and sympathy of the profession. But if one feels that the profession is looking askance at him and criticising his efforts, he can not proceed earnestly and heartily to do his very best.

Much, also, depends on the disposition of the patient to appreciate his efforts. If you are assured of his appreciation, it acts as a stimulus to impel you to do your utmost to accomplish the desired result.

Dr. Buffett: Many, I have no doubt, are making contour fillings more for the reputation which they expect to gain in the profession, than from considerations of what will be for the best good of their patients. The latter should be the main consideration. Oftentimes the prolonging of an operation unnecessarily for the sake of making the filling a contour, results in irritation and local disturbance, which might have been avoided had the operation been shortened. Patients are often made sick by a tedious operation. The loss of the tooth would have been more willingly endured than the cost in suffering at the time and afterward, of having a large contour filling inserted. As you know, many of these operations require for their performance from three to five hours. Extracting the tooth would be in many instances better for the patient.

Contour filling may be attempts at full restoration or only partial restoration.

I do not think there is one case in fifty where it is wise to attempt to restore the exact original shape of a tooth. Its mal-position in the mouth often precludes the possibility almost of doing it. The main object should be to make it

serviceable. Give it such a shape that it will be self-cleansing. We should not make our patients walking advertisements. As a rule, I do not think that when the pulp of a tooth is dead, a contour filling is likely to be durable. I should make contour fillings for men more frequently than for women, because they are not so conspicuous.

Dr. Watt: Let us hear from those who do not favor contour fillings at all.

Dr. Whinnery: My conviction for some time has been that contour fillings, as they are made, have been proven a failure; that is to say, many of them. Fill the central incisors with soft gold, as we used to do twenty-five years ago, and you have seen them saved, while the same operation, performed with cohesive gold, has proved a failure.

Dr. Jennings: I would like to ask the opinion of the members as to the method to be employed in a case of this kind: The tooth is a second superior molar for instance, very firm and solid, there is a cavity at the margin of the gum on the approximal surface. You can not separate the teeth with a wedge on account of their firmness. How shall we reach the cavity to fill it?

Dr. Keely: Cut away until you have sufficient space.

Dr. Jennings: I have come to the conclusion that it may be possible to gain space by wedging.

Dr. Taft: I would cut through from the buccal surface or else cut a slot down through the crown.

Dr. Bowman: I will explain my method: In the first place, I put a thin piece of rubber between the teeth, and when that has effected a slight separation I force in cotton, and instruct the patient to force in more from day to day, as it may be required. You would be astonished to see what can be accomplished in the way of separating the teeth by this method. I know a lady who used white wax to close up and hide a space between two teeth. They were thus separated for fourteen years, wide enough to admit a central incisor between them.

After the teeth were filled, the space was closed up in a few weeks as the teeth settled together.

Dr. Keeley: We must remember the occlusion of the teeth is sometimes such that we can not get a space unless we move several or even all the teeth.

Dr. Butler: The question naturally arises whether it is wise to make a space between the teeth in these difficult cases. The tooth is supposed to be decayed upon the approximal surface. Why has it decayed? Because there has not been sufficient care taken to keep the space clean. Now is it desirable to widen the space and fill the cavity, even if it be done ever so carefully. Would it not be better to cut from inside?

Dr. Watt: I believe that many failures in making contour fillings, compound fillings, occur for the lack of a knowledge of the general principles of civil engineering. The amount of force that is to be brought to bear upon the filling; the direction in which it is to be applied, the resisting power of the tooth; all the considerations pertain to civil engineering.

We labor under a disadvantage. The architect usually knows the relative strength of oak, ash, pine, poplar, etc. It is a more difficult matter to estimate the relative strength of teeth.

While we talk here about the collateral sciences, I believe we have made a mistake in not regarding civil engineering as one of the collateral sciences of dentistry. I wish that all dentists might have the opportunity of taking a course in civil engineering.

Dr. Horton: We can not always make contour fillings when we think it desirable to do so, because the patient objects to it. I rarely advise an operation of the kind when there seems to be a tendency to the formation of abscess, or where the condition of the patient's system is such as to discourage a prolonged and tedious operation. I have for a few years past advised the substitution of an artificial crown in many cases, instead of attempting a contour filling. Nevertheless, when conditions are favorable—when the pulp is alive, and I think all the circumstances warrant it, I *do* resort to contour filling.

This is a matter which has received my most careful con

sideration. There are patients for whom I would refuse to operate because they are not willing to let me follow my own methods.

THURSDAY, DECEMBER 3d, MORNING SESSION.

Subject for discussion: "Practical views and results of experience in the use of the various preparations of gold for filling teeth."

Dr. Taft: Comparatively few operators now use only non-cohesive gold, and insist that it is the only suitable form of gold for the purpose. There are some—this was especially true a few years ago—who have assumed that cohesive gold *only* is suitable for the purpose of filling teeth. Still, others again have used both, as circumstances have seemed to indicate. I think that the true course. There are objections to gold in all the forms in which it has been presented. A filling of non-cohesive gold can not be welded into a solid mass. The contour of a tooth can not be restored. The terms *non-cohesive* and *soft* foil are generally considered synonymous.

They are not always the same, for instance, gold that is soft and yielding will often weld readily. But some soft foils will not weld at all, or at least but very imperfectly even after annealing.

Fillings of non-cohesive foil are very liable to be dislodged unless great care is taken to secure them. The use of screws renders the use of non-cohesive foil far more practicable than formerly. This form of gold recommends itself for the reason that it is more readily adapted to the sides of the cavity than the cohesive. It is said that more of it can be packed into a cavity than of cohesive gold. That depends upon the manner in which the gold is manipulated. Introduce a piece of cohesive gold, make pressure upon it, it yields in the direction in which the pressure is made and conforms to the surface. After that is done, in so far as it moves, it leaves a space behind it. That space must subsequently be filled or the plug is imperfect. Cohesive gold is susceptible of being built up into any desired shape. Skillful manipula-

tion is of course requisite to enable any one to adapt it to any inequality of surface sufficiently well to exclude foreign substances from the cavity.

In judging of the comparative merits of the different preparations of gold, we must, in citing cases in our practice, take the aggregate of the cases from which to make our deductions. No correct conclusion can be reached by selecting special instances of success or failure, without regard to the general average. There are many excellent qualities to be credited to each form of gold, cohesive and non-cohesive. We should not disparage either; we should be able to avail ourselves of the best properties of both.

Dr. Whitney: It is my misfortune to be located at Honolulu, where my predecessor, twenty-three years ago, commenced practice, using non-cohesive gold. Under his instruction I had, I think, abundant opportunity of seeing what could be accomplished with non-cohesive foil. After a careful comparison of the two, cohesive and non-cohesive foil, I have reached the conclusion, that as a rule, cohesive gold has accomplished better results than non-cohesive.

In the anterior teeth, I have seen fillings of non-cohesive gold fifteen and twenty years old, in good state of preservation. In the back teeth, on the contrary, the fillings have failed. I think that we should be able to discriminate, and to know when to use the one, and when the other.

Dr. Rehwinkel: In using cohesive gold, I think we are on the right track. Electicism is the only true course. I am becoming daily more and more convinced, that as much judgment is required in the choice of materials to insure successful operations, as in anything else.

I have never confined myself exclusively to the use of cohesive gold; would not consent to do so. Neither would I consent to use the other exclusively. I make a practice of studying conditions well, and then determine which to use.

Inasmuch as the theory of the operation of cohesive gold has led us within the last five years to use this material to the exclusion of others, I will go farther, and say: that I do not consider the education of any dentist complete, until he is

able to manipulate all the materials which present themselves in the operation of filling teeth, whether non-cohesive or cohesive foil or tin. I should insist on every student's knowing how to use these materials.

Many of the advocates of non-cohesive gold seem to forget how many teeth have been lost after being filled with that form of foil. In condemning or praising any one material, we ought not to take isolated cases, but try to arrive at an average of successful or unsuccessful operations. Every one who has used cohesive gold knows the difficulty oftentimes of making a close adaptation of the gold to the walls of the cavity; that is a point which is often overlooked by the young operator.

The use of the mallet has much to do with the success or failure of any operator. We hear the most opposing theories as to the proper weight of the mallet—the material of which it should be made, etc. In my opinion, the important question after all, is as to the malleter. We place half the responsibility and the cause of failure or success in our operations, in the hands of an inexperienced boy. We are often more dependent upon the assistant than we are willing to acknowledge, even to ourselves. Many operators now do their own malleting; I consider that a step in the right direction. We must learn to use both hands equally well.

The dentist must have a variety of resources. We find patients who can not endure our improved appliances; we must be able to adapt ourselves to the circumstances of the case. Here it is that we have an advantage in our ability to manipulate successfully either cohesive or non-cohesive foil. I would not part with my knowledge of the manipulation of soft foil for any consideration; I should be crippled without that knowledge. The manufacturers tell us that they sell more non-cohesive foil now than they did a few years ago. I can explain that: there is always a reaction after going to extremes; there is no doubt at all about it that this question of the use of cohesive foil has been pushed to extremes. There are a great many cases where a combination of the two forms of gold would accomplish better results than the

exclusive use of either. Take, for instance, a deep seated approximal cavity. It might be found very difficult to make a perfect operation with cohesive foil alone. I have reached the conclusion after years of thought and experience to use any good material or any method of manipulation which will best accomplish the result I aim at. It will not do to confine ourselves to any one material—to any one mode of practice. We must apply ourselves to investigation, and find out what best suits our individuality. Then failures will be less frequent.

Dr. Butler: The experience of one individual can not go far toward establishing a correct mode of practice, if that individual simply confines himself to a comparison of his own productions and experience with his own. If he goes no farther than that, his judgment is not well founded. We can only know of the value of any mode of practice by comparison among ourselves. Cohesive foil was first introduced about sixteen years ago; from that time to the present, it has been almost universally used. The teachings have been such that men coming into the profession have been inclined to employ cohesive gold to the exclusion of everything else.

It behooves us, gentlemen, to consider carefully whether we are doing the very best we can for those who demand our services.

There has been a great aspiration on the part of the profession, and especially on the part of young men to become operators.

The result is that many have become, not operators, but mere manipulators. They have educated their fingers, but after all, they have not become masters of all the different materials, which, if used more frequently than is commonly, the case would give far better results in many cases.

Some men become very skillful in the use of non-cohesive foil, just as others become skillful in manipulating cohesive foil. We all recognize a fact that thousands of teeth are now filled and preserved which could not have been rendered serviceable by the old method of filling.

I remember quite well when a man using cohesive foil and

filling successfully large cavities which had been considered beyond all surgery, was called "pirate," and "highwayman," when he charged \$5.00 and upward for such operations.

Now, a man who sacrifices such teeth is denounced in terms just as severe. It would be considered mal-practice. These are the results which have followed the introduction of cohesive foil.

Properly used, it is indispensable; but there are many cases where the non-cohesive foil can be used with advantage, since it can be introduced more rapidly and answers the purpose fully as well as the cohesive foil; I will not say better. There are men who make good gold fillings who can not make a tin filling. There are men who put in tin fillings which last from fifteen to twenty years. Cut out one of those tin fillings and the last fragment will cling to the walls of the cavity with the same tenacity you notice in gold.

In attempting to confine ourselves to any one material for fillings, we will often defeat our own ends. We make failures, and we try and try again and again in the same way, and *still* fail, and all the time we are doing ourselves and our patients an injustice.

A more complete knowledge of all these materials is requisite, and if we expect to attain to the standing which we think we deserve, we must investigate. There is a demand for better dentists. The people are becoming enlightened, and the man who would impart his information, must first get his information.

I would much rather operate for the person who appreciates a good operation, than for one who does not discriminate between good or poor operations.

Dr. Bowman: I used soft foil exclusively for from fifteen to twenty years. When attention was first directed to heavy foil, I tried it and became disgusted with it. I thought others did not know what they were recommending. Afterwards I tried it again, and, becoming familiar with its peculiarities, I succeeded in making good operations; I now use it exclusively. I do not pretend to say that others may not make good operations with the light foils; but I am confident in the

opinion that I can do better work with the No. 60 gold foil or rolled gold; I fill the nerve canal with No. 60. I think I can carry it more perfectly to the apex of the root; in filling cavities with it you can pack it more closely to the walls of the cavity like tin foil. The lighter gold becomes disintegrated in the using. A heavy foil filling has a different appearance, after it is burnished, from a light foil filling.

I prefer to use one grade of gold because after becoming accustomed to using it, it is better not to change. We are all creatures of habit.

I have not been so well pleased with the heavier Nos.; 120 and upward.

Dr. Jennings: Do you depend upon the spreading qualities of the gold to make a perfect filling?

Dr. Bowman: Not by any means, I depend upon the instrument to pack the gold. But I claim, nevertheless, that the heavy gold spreads better than the light, for the simple reason that in packing the light gold you harden it.

Dr. Jennings: That would be a disadvantage in the case of a frail tooth.

Dr. Bowman: I have found no instance where a filling could be inserted at all, where I could not fill as well against a thin, weak wall, with the heavy as with the light foils.

Dr. Whinery: It has seemed to me for several years, that attention has been too much directed to the use of one particular kind of gold. Individuals, *who do not themselves know* how to use cohesive gold successfully, are impressed with the idea that it ought to be considered unprofessional to use *any other* kind of gold; consequently, they have made much bad work, because of their aspiring to use cohesive gold when they do not really understand the proper mode of using it.

Dr. Horton: I am inclined to advocate the use of non-cohesive foil in many cases; more skill is frequently required for its manipulation than in the use of the cohesive gold.

He spoke of the absolute indispensability of the rubber dam in many cases. He sometimes postpones an operation which he thinks is likely to tax his skill and strength; until he thinks circumstances are more favorable, as, for instance,

when he does not feel well himself, or his patient is not in the best condition.

It is important above all thing, to take time for operations. As much or more, depends on the manner in which an operation is performed, and the pains which is taken with it, as on the material used. Some men are enthusiasts on the subject of heavy foils. The dentist must always be master of the situation, and be able to decide what is best to use in any given case. Sometimes he uses the ordinary cohesive foil, unannealed; if it is prepared in too large rolls, it will clog in the cavity. He therefore uses it in strips. Subject passed.

The subject next considered, was the "Status of mechanical dentistry." Sub-divisions as follows:

a. Can the mechanical branch be rescued from its demoralized condition and raised to a higher and professional standing?

b. The best means for the accomplishment of this.

c. Has the time arrived for the separation of the operative or surgical from the mechanical department?

d. Advantages and disadvantages of such separation to each department.

Dr. Porter: I am one of the very few perhaps, in Ohio, who ignore wholly the mechanical branch in my practice. It has seemed practicable to separate the two departments in the larger cities, but whether or not it could be done in a country practice, has been a question. I made the change in the Spring of '71; it was predicted by some that I would find myself unable to retain the patronage in the operative department.

I found, however, that the first year after making the change, my operative department increased about one-third. It has never since decreased.

I have not made a set of teeth since December, '70. I know from experience, that a man can demand better fees who adopts operating as a specialty.

Dr. Rehwinkel: When we speak of dentistry as a profession, we are very apt to make no mention in the connection of the subject of mechanical dentistry. The committees

in our societies have generally either failed to make a report on the subject or if a report has been submitted, it has been received with so little interest and attention as to discourage any future presentation of the subject. While we boast, and justly, of the many improvements which have been made in practice, in the operative and surgical departments, we have nothing to tell of improvements in the mechanical department. While the one department has advanced, the other has, undoubtedly, retrograded. This is a cause of alarm to many of our best men. The fear, and I think with reason, that by at once withdrawing their interest and attention from mechanical dentistry, it would immediately sink to the level of a mere trade. I think the problem which is presented, of separating the two departments, must necessarily be left to its own solution.

There are difficulties in the way of the accomplishment of the object, which I have been unable to see any way to surmount.

Dr. Rehwinkel spoke at some length of the demoralizing influence which has been at work in the department of mechanical dentistry since the introduction of rubber, and which has reduced the status of mechanical dentistry so low, that men in the profession, whose natural taste leads them to prefer operating, have come to neglect the mechanical branch altogether.

The relation of the operative and surgical dentist to the mechanical dentist, has been compared to the relation of the surgeon and the manufacturer of artificial limbs, from which the conclusion is deduced that the two departments are naturally distinct and separate. This is not, however, a necessary conclusion, and, in point of fact, is not sustained by the existing state of things.

If by the separation of the two departments it was understood that the mechanical was to be allowed to extract teeth and perform other operations in the province of dental surgery; in preparing the mouth for the reception of the artificial set, then he was opposed to the contemplated separation.

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At all events, he did not consider it within the range or jurisdiction of any society to legislate upon the matter.

He did not feel competent to judge as to whether or not the colleges should drop the subject of mechanical dentistry from their curriculum. The inclinations of students must always be regarded; it is folly to ignore a young man's tendencies, and force him to learn that which is distasteful to him.

At the conclusion of Dr. Rehwinkel's remarks, Dr. Taft moved that the fifth subject be taken up in the connection with the clinic in the afternoon. Carried.

The Society then adjourned.

THURSDAY EVENING SESSION.

Dr. Rehwinkel made remarks bearing on the subject of the decision in equity of the Circuit Court of the Eastern District of Michigan; case of Goodyear Dental Vulcanite Co., et al., *vs.* George Willis. He said: "A year ago we were in hopes that in a case then pending, a decision would be rendered in our favor.

You are by this time apprised of the fact that such expectations have not been realized, that notwithstanding we thought from assurances given us, that we were not without good reason for such hopes; we have been disappointed. It was a great disappointment, and cast a cloud over the profession not only in this State, but elsewhere. Your committee were at a loss what to do; they felt the utmost confidence that the case presented in Massachusetts was as good as could possibly be made out anywhere, that every necessary step had been taken to bring it to a fair presentation before the Court; while they did not see any chance of presenting a plausible case in this State. We had no additional testimony whatever to offer

While that case was in suspense and we were at a loss what to do, a case was commenced in Michigan, upon the decision of which it was expected that several other cases would be decided as by a precedent. The Michigan dentists

applied to the profession in the neighboring States for pecuniary assistance; the presentation of that case was fair and encouraging. It had been represented to your committee that important additional testimony was to be offered, by which it was hoped the previous decisions of the Courts would be reversed. We were led to believe so by our counsel; the prospect seemed so fair, that our counsel from this State, Messrs. Cox, Follett & Cochran, expressed themselves as sanguine of success. As a matter of course, our confidence was buoyed up by these expressions, and we were in strong hopes of seeing a result, the reverse of that given in the Massachusetts case. The case was originally set for hearing in June, but owing to the absence of one of the Judges, it was postponed until October. It was then again postponed until November. In the meantime, when the American Dental Association met, the majority of your committee had a personal interview with the gentlemen of the Michigan Association, who were interested in the case, and also with the counsel. Although there was nothing new developed then—the case being precisely as it was during the previous time—still, they were very hopeful, especially the counsel, and reiterated their former statement, that there had been important additional testimony presented, and that the case in Michigan *would be heard upon its merits*. As time went on, they failed us time after time in such matters as failing to get their documents completed, etc., and upon consultation with counsel from our own State, your committee saw the propriety and policy of coming to the assistance of the profession in Michigan, because whatever might be the decision in that case, we might expect to abide by the consequences. Upon that principle they have acted; they have done everything in their power to strengthen the hands of our Michigan brethren.

The case was heard in November.

There were some facts presented before that bench which I think it improper here to comment upon. One thing I will mention; after the Honorable Court had heard the argument of one side—or at least in part—the Court decided to pronounce opinion. It was in substance this: that although the

patent was by the Court considered invalid, it was not considered proper to differ from the decision of Judge Shepley. So it appears that our friends in Michigan were mistaken as to the force of the testimony. They were also mistaken when they flattered themselves that the case would be heard upon its merits. Dr. Rehwinkel then read a letter from the Ohio counsel, Mess. Cox, Follett & Cochran, touching the matter, which appeared to convey the opinion that the decision rendered was irrevocable and irreversible, and advising those members of the profession in arrears to the Vulcanite Co., to settle on the most favorable terms with them.

He also stated that Mr. S. S. White had authorized him to say that he is \$10,500 out of pocket; that he has done all in his power to bring this case to the Supreme Court, that it now rests there, and that if the profession wished to have the case argued further, they will be expected to come forward and contribute of their means.

Dr. Horton read a circular which he had recently received from Mr. Bacon, calling his attention to a list of cases tried in which judgment had been rendered in favor of the Rubber Company. Dr. Rehwinkel then called attention to the question as to what would constitute an infringement in the using of rubber, as the case now stands. He said the profession is now released from all restrictions which were formerly imposed by the Goodyear Company. The using of rubber to attach teeth to a metallic plate does not constitute an infringement; that right has been purchased by the Penna Protective League and presented to the profession. He was not able to say whether the manufacturing of obturators would be called an infringement.

As to using rubber in repairing old plates, he thought the Company would claim their right to impose license for the privilege, but he did not think the claim would be allowed.

Dr. Bowman asked whether or not, in case the Cummings Patent should by the Supreme Court be pronounced invalid, a previous judgment rendered by the District Court against a party, would stand.

Dr. Horton: The decision of the Supreme Court covers all the ground.

Referring to the question which had been asked, as to the liability incurred by anyone using rubber in repairing old plates, he said that point had been settled by the Supreme Court. Hall's Digest gives a case which involves the point, viz.: the right of a license to repair the machine, or the work he had constructed under a license, that license had expired. For instance, a man purchased a license, we will suppose, and it has expired, supposing a plate he had made under the license should fail, he could repair it with impunity. One of the District Courts in New York decided in the case of a man who had repaired a sewing machine under these circumstances, against whom suit was brought; that he should be allowed *to make any part of the machine over again* without paying a royalty.

Dr. Herriott spoke of the fact that the Rubber Company had in some instances made unjust and fraudulent claim against parties who had infringed. He warned the members to avoid being imposed upon.

Dr. Rehwinkel: The question has been asked in regard to the refunding of claims collected of the dentists. If we find it best to settle before a Master Commissioner, can we require him to give us security that the money will be refunded in case the decision of the Supreme Court should be in favor of our profession?

This question will be considered by our counsel, and the result of their deliberation will be announced at the earliest possible moment.

The question then arose as to which would be the best course to pursue, whether to settle with Mr. Bacon, the company's representative, or before a Master Commissioner. Dr. Rehwinkel did not feel justified in expressing an opinion. The President, Dr. Smith, thought the better way would be to settle with the Master Commissioner. He can not assess beyond a legal claim. He will not allow any advantage to be taken.

Thought the profession had nothing to fear in making settlement in this way.

At the request of one of the members, Dr. Smith gave

some account of the proceedings in the recent trial in Michigan, at which he was present.

Dr. Bowman then offered the following preamble and resolution: Whereas, the Goodyear Dental Vulcanite Company and Mr. Bacon, in a circular dated December, 1st, 1874, and addressed to the dental profession, state among other things, that "the publisher of the "Dental Cosmos," engaged for several years past in advising a course of litigation, which, for strange reasons, has been followed by a great number of your profession." Resolved, that this Association declares this statement to be contrary to the facts, and testifies that whatever Dr. S. S. White has done in connection with this rubber litigation, has been done by him in the interests and by express solicitation of the dental profession, and we hereby tender him again our thanks. We furthermore request him to continue in this good work, and bring the case now pending before the Supreme Court of the United States, to its final hearing—we pledge him material support.

Dr. Horton spoke of Mr. White's interest in the dental profession, and said he could sympathize with him, and could understand his unwillingness to incur further expense in behalf of its members, unless they should manifest more of a disposition to render pecuniary assistance. Said that when Mr. Fisher had told them that it was cheaper to fight than to run away, less than one hundred dentists out of five hundred in the State, had contributed money to carry on a suit. The consequences which have come upon the profession could have been averted; a compromise could have been made in time past, which would have saved the profession thousands of dollars.

Other members spoke of the obligation which was imposed upon every man in the profession to aid in pushing this matter to a final investigation and decision in the Supreme Court. Adjourned.

FRIDAY, DEC. 4TH., 1874.—MORNING SESSION.

After the transaction of some matters of miscellaneous business, the last subject on the list; dental hygiene, was taken up.

Dr. Taft said he was not certain whether in announcing of this subject, reference was had as to the health of the dentist, or whether it was intended to give the discussion a broader scope and include the care of the teeth by the patient. Various occupations exert a pernicious influence upon health.

Dentistry may be classed among those occupations which require great care on the part of the one who follows the pursuit, to preserve his health.

If the dentist confines himself very closely to his duties his health is likely to suffer. Much depends upon the position assumed in operating; many work in a cramped and unnatural position. This is all a matter of habit and can be avoided if attention is directed to it; many are too much confined to the office, and work too many hours a day. This was manifestly the case a few years ago, when it seemed as though some of the best men in our ranks had injured their health irretrievably. Of late years more attention has been given to this matter, and we are learning the importance of exercise and recreation.

If the preservation of his health is an important matter to the physician, it is still more so to the dentist. Anything which effects the nerves, as loss of sleep or dissipation of any kind, it will readily be admitted unfits the dentist for the proper performance of his duties. How can a man in such condition investigate and diagnose, and operate with justice to himself or his patient?

The dentist, like all others who follow in-doors occupations, should have a diversity of employment; let him divert his mind by study; let him seek relaxation in horticulture or any light, pleasant occupation which will keep him much out of doors. Some have been much benefited by attending the gymnasium.

This matter of health of the dentist deserves far more consideration than it usually receives. Hundreds of men break down every year, by ignoring the simplest laws of health.

Dr. Horton said he is in the habit of operating as much as possible in the open air; keeps his rooms well ventilated by leaving doors and windows open as much as possible, when

the weather will permit; allows the fire to go out at night and re-kindles it in the morning. He thinks a man loses nothing by taking his dog and gun and going out frequently for a long tramp. It is a short-sighted policy which makes a man afraid to leave his office occasionally, lest he should miss a patient. Health is wealth after all. He thinks that what time a man loses from his business and devotes to the cultivation of his physical and mental well being, will be more than made up by the years which he is thereby adding to his lease of life.

Dr. Rehwinkel and others offered remarks upon the subject, indorsing the views which had been presented.

The Society then adjourned.

Miscellaneous.

ON TAKING PLASTER IMPRESSIONS.

BY ANDREW WILSON, ESQ.

Judging from the general tone of the remarks made on the subject of plaster impressions, at the December meeting of the Odontological Society, as reported in the last number of this Journal, one of the chief (if not the chief) objections was the unpleasantness of the plaster flowing into the mouth, and especially over the throat.

Having suffered very frequently from this happening, and thoroughly appreciating the advantage of getting a trustworthy impression, I was very glad when, three years ago, assistant proposed the use of soft modeling clay as a barrier

to stay the egress of the plaster at the palate. I have ever since used it, and find that it almost, if not entirely, gets rid of that drawback in taking plaster impressions.

For the benefit of those who may wish to give it a fair trial I will describe my mode of proceeding, taking an upper suction case as an example. First take the impression in Godiva, cool it thoroughly, pare away all superfluous bulk, and with a sculptor cut away freely the composition round all remaining teeth, and deepen as well as widen the parts, giving the alveolar ridge, cutting most freely where any part of the ridge is soft or pendulous. The result of this is that the only portion of the original surface left is the palate. I then cut a groove with a flat-pointed graver, along the back part of the palate, close to the edge (to prevent the displacement of the clay under pressure), and if the surface seems to require it roughen the surface of the palate by scoring it with a knife. I now take a little *soft* modeling clay and build a wall on the groove, varying in height from one quarter to one eighth inch. The tray is now ready for filling with plaster, and when introduced into the mouth the back part is first brought to its position in contact with the palate, which presses the clay into its own form, and thus preventing the plaster from escaping in that direction drives it forward. All superfluous plaster escapes under the lip (or against the cheek), causing almost no uneasiness, while being useful as assisting you to judge as to when to remove the impression, as plaster sets more quickly in the mouth than in the basin. The forward movement of the plaster in the tray has another and very important advantage, as you obtain a much sharper impression of the *front* part of the palate and rugæ than you would otherwise obtain.

For impressions of the lower jaw I form a wall along the whole inner edge, much stronger, as here it acts not only as preventing the escape of the plaster, but also as damming out the saliva.

In cases where any of the remaining teeth are *very* much necked or decayed, or lie at a *great* angle to the others, and the impression is not likely to break at them, I make up the teeth to draw more easily with soft clay.

As regards the plaster, I prefer using it cold, for two reasons: it is less likely to cause nausea, and there is not that tendency to granulate which I have always found takes place when warm water was used.

Of chemicals to produce quick-setting, I find Fletcher's alum in solution, in the proportion of one ounce to the imperial pint, and colored with a little burnt umber, answers best; from two to three minutes sees it hard enough for removal.

Common salt has the great disadvantage of being deliquescent, and soak the impression as you may, the model from it is inclined to get damp, telling against it when in the molding sand.

The objection that saline ingredients produce cold, of course only applies when the salt is added to the wet plaster as a *solid* (powder), when it acts as in freezing mixtures.

Saline solutions act in that respect just as pure water of the same temperature would do, and as you can always use a solution of uniform strength in making up your plaster, you can look for equally uniform results.

I think it an advantage to make the solution with water which has been boiling for a short time, as the water being thus freed from all air in solution, there seems less liability to air-blows in the plaster.

For small impressions, say not going beyond the first molars, or involving much of the palate, I only line the tray irregularly with the Godiva (so as to prevent the plaster leaving the tray, unless heat be applied), clay rarely being required, as with Fletcher's solution of plaster is slightly viscid and much less inclined to run than with either salt water or pure water.

Of course it requires some practice to give confidence and make it (in most cases) easy, but the greater the difficulty in taking a plaster impression in any case, the greater the advantage, I may say the necessity, of having one, all other materials yet employed, be it Godiva, Stent, or wax, giving miserable apologies for impressions in such cases. In conclusion, the best results with plaster impressions can only be obtained or looked for where the principal himself is willing to be at the

trouble, not only cementing *in situ* all pieces of importance which may break off in removing it from the mouth, but also of separating the model from the impression afterwards.—*British Journal of Dental Science.*

INJURY OF THE FACE.

BY J. S. THURMAN, M. D., OF CEDARVILLE, MO.

I am prompted to report the following case, on account of its rarity in country practice. In Southwest Missouri physicians seldom meet with cases requiring immediate surgical appliances.

I was called in great haste, on the 5th of January last, to see Elois Acock, aged twenty-four years. On arrival I found him lying on the floor in a semi-conscious state, with copious hemorrhage flowing from the mouth and nose. I learned, upon inquiry, that he was passing near the heels of a horse, and slapped it with his hand, at which the animal became frightened, and kicked with all its force, striking patient on right side of the superior maxillary bone and mouth. I found, upon examination, the upper jaw to be fractured, in a line commencing just behind the last molar tooth, and passing across the malar process to the lateral boundry of the anterior nares, and then down between the canine and incisor teeth. On manipulation of the left side of the upper jaw, I detected mobility and crepitation, but was unable to determine the line of fracture; apparently all the bones of the face were detached and the soft parts terribly contused.

The swelling soon closed his eyes; then he was a horrible looking object. There was a gash cut in the lower lip, I presume by the shoe of the horse, three-fourths of an inch in

length. Reaction came on in three or four hours. The hemorrhage was soon controlled by the application of cold water. Several small spicula of detached bone were removed with dressing forceps. The fractured part was then adjusted by introducing my finger into his mouth and placing and holding the detached portion until a cork was placed between the first molars on each side, and the lower jaw brought firmly up, which held the cork in its place; a bandage was then applied, such as used in fracture of the inferior maxillary. The gash in the lip had previously been united with sutures; the other bones were replaced as far as possible. Patient was then placed in bed, and the mouth and nose ordered washed with solution of carbolic acid four times per day, and fluid nourishment. The first twenty-four hours patient was very restless, after which he became more quiet and rested well. I removed the bandage on the 14th day, and found union perfect. Some discharge from nose. Four weeks after, I saw patient at my office; there was no discharge from the nose and he said he was satisfied with his jaw, but should have been glad of a few more teeth.—*Reporter.*

TORSION AND REPLANTATION.

Within the last few months numerous communications have appeared in the dental journals in reference to these operations. It is noteworthy how generally they are treated of as simple mechanical procedures. But assuredly elements beyond the mere mechanical enter into and should determine the wisdom of all such operations. Whoever deals with vital tissues, will learn that "circumstances alter cases." An operation which may in one instance be perfectly justifiable, and suggestive only of good results, may, in another case, be

contraindicated so strongly that, if evil consequences ensue, the verdict would be compelled that ignorance or carelessness was manifested by the practitioner.

In cases of injury or of abnormal growths threatening life or limb without surgical interference, the hazard of untoward results must be accepted by the operator; the choice of evils as well as uncertainties must be made; but where the problem is merely the correction of an irregularity, involving only the question of improved appearance, the risk of consequences more to be dreaded than the existing condition should be taken in to the account.

It is a curious and instructive lesson, that Nature's toleration of heroic treatment seems to be in proportion to the absolute necessities of the case. Thus tetanus, and perhaps erysipelas, are more apt to follow upon slight than upon severe operations. The deaths from anæsthetics are startlingly associated with minor operations. A tight boot, the clumsy paring of a corn, a puncture by a tack, a scratch of a fellow-sleepers's nail upon the skin, and other like trivial matters, have resulted not unfrequently in serious disturbances, and even in death.

An injury of a member sought to be retained is generally more troublesome than the results of amputation, and torsion, it is not hard to believe, it is vastly more liable to produce mischief than extraction would be.

There are wonderful differences of susceptibility in different individuals, and equal differences in their reparative power. There is also in the same individual, at different times, a greater or less power of resistance to deleterious influences. Not only therefore should the idiosyncracies of the individual be considered, but the existing systemic condition. Every one is liable at times to a general lowering of the resistive capacity, in which state, as patients often express it, "every scratch becomes a sore." The probabilities of success in torsion or replantation, under such circumstances, would evidently be much less than in normal condition, when union by first intention takes place even after severe wounds.

The ability to estimate constitutional predisposition or

systemic degeneration would be of essential service in determining the likelihood of success or failure in such operations as those alluded to. It must be granted that it is not always possible to be so skillful in diagnosis as surely to foretell success, but on general principles the chances may be approximately estimated.—*Dental Cosmos*.

Book Notices.

DENTAL PATHOLOGY AND SURGERY. BY S. JAMES H. SALTER, M. D., F. R. S. Published by Wm. Wood & Co. For sale by Robert Clarke & Co., 65 West Fourth street, Cincinnati, O.

This volume is made up from the papers and essays of the above named author, and contains the results of his researches and labors for the past twenty-three years. It places in a form that is available much valuable information, both instructive and interesting, many important points of practice which could not be obtained without a troublesome and tedious reference to a general medical and surgical library; and there are a large number of dentists who are not in reach of such. Mr. Salter has been a constant investigator and writer during his entire professional career. His articles have been distributed throughout medical and dental literature, so that in collecting and arranging them in their present shape he has done a service that will be productive of much good. The work is purely what its title represents it to be, and is not in any way mixed up with the mechanics of dentistry. It is a valuable work for consultation and reference, and should be in the library of every dentist.

Editorial.

NEW GOLD.

Dr. C. E. Blake, of San Francisco, recently made us a flying visit when he presented some heavy gold foil, prepared with a view of securing some points not heretofore attained, viz: a gold foil No. 60 the body of which contains twenty per cent of platinum, and this alloy covered with pure gold, the object of this is to secure a hard gold, for the surface of fillings that are subjected to wear in mastication, the surface consisting of pure gold, makes it very cohesive, and it welds as well as though it was wholly of fine gold. On all gold fillings where there is much wear by mastication it will be of great service. Another foil No. 60 he is introducing which he denominates "Proof Gold" by which he means gold absolutely pure. This he claims has not been attained by any other maker of foil. This foil is very soft and exceedingly cohesive, and is well adapted for making fillings anywhere. These foils are not yet in the market, at least outside of San Francisco; but it is the intention of Dr. Blake to make arrangements very soon to supply the profession, with these preparations of gold; and also some others in which there seems to be some excellent qualities developed.

THE AMERICAN DENTAL SOCIETY OF EUROPE.

The American Dental Society of Europe will meet at Homburg, near Frankfort, on the Main, on the first Monday in August, 1875.

American brothers who may be traveling in Europe, are invited to arrange their trip, so that we may welcome them in Homburg

C. M. WRIGHT SEC.

BASEL, SWITZERLAND.

FLOWERS.

Every dentist should be a lover of the beautiful; and nowhere in nature can beauty be better and more pleasingly studied than in flowers. The rearing, study and admiration of them, constitutes a grateful relaxation, and diversion from the severe and arduous labors of the dentist in full practice. We have a very forcible reminder in this direction, by looking over the first number of Vick's Quarterly Guide for 1875, the January number has just come to hand, it contains over one hundred pages, and engravings and descriptions of more than five-hundred of our best flowers and vegetables, with directions for culture. This is the best work of the kind we have ever seen and there is perhaps none better in the world. We advise everybody to procure it, and if its contents are examined, it will stimulate a love for flowers, and thereby develop the finer sensibilities, that in too many of us are latent.

This little work of beauty is published by Jas. Vick, Rochester N. Y., at 25 cents a year.

S. S. WHITE DENTAL ENGINE.

We take pleasure in thus acknowledging the reception, by the Ohio Dental College, of one of Mr. S. S. White's superb Dental Engines. The completeness and perfection of which, leaves little if anything more to be desired. It certainly has the best hand piece, for retaining the drill, and we think in all respects, extant; this will be fully appreciated by those who try it, after having been annoyed with those from which the drill falls whenever they have a downward inclination.

These engines, like everything from Mr. White's establishment, have a beauty and finish, that will be difficult to equal, and more difficult to excel.

The thanks of the faculty are hereby extended to Mr. White for this valuable contribution to the practical department of the Institution.

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ADDRESS.

BY J. RICHARDSON, M. D., D. D. S.

At the Thirtieth Annual Commencement of the Ohio Dental College, March 4th, 1875.

Gentlemen Graduates:—The agreeable duty has been assigned me this evening of felicitating you upon the completion of your collegiate course, and of assisting in the closing exercises of the session by offering to you such parting words as may seem appropriate on the occasion of your formal entrance upon the duties of your chosen profession. It has been quite a number of years since it has been my privilege to participate personally in the Commencement Exercises of this honored institution, and I am by no means insensible to the compliment implied in the invitation to do so now. To those who feel personally identified with the school, by reason of their

relations as alumni, there attaches to these annual exercises an interest superadded to that which all must feel in the cause of dental education, *per se*.

Twenty-two years ago I assembled day after day with my class mates in this amphitheater, and at the close of the session passed out as you will do to-night endorsed by the faculty as qualified to take upon myself the important duties and obligations of my calling. Whatever measure of success may have attended my professional life since that time, rests, I am sure, upon the fundamental and underlying truths and principles taught me in this place. Later, I became more nearly identified with the interests of the school by association with the faculty. After a few years this connection ceased, since which time I have led a life of comparative professional isolation, but carrying with me always the old and unabated love for my Alma Mater. Back once more within the old walls, and charged with the duty of addressing you for a brief time, I enter upon its discharge by tendering you first, as was tendered to myself and others upon a similar occasion, a formal but most friendly and cordial welcome to the ranks of the profession.

I shall depart this evening, gentlemen, from the usual and time-honored custom of imparting words of advice to you upon matters pertaining to your future personal and professional deportment, and the varied personal duties and obligations which will grow out of your new relations to the profession and the public. I shall assume that you are entering upon the life-work before you with adequate and intelligent views of all these things. In the brief time allotted me, I prefer rather to talk to you about some matters of general concernment to to the profession at large, and therefore of interest, I hope, to you, since they relate to a calling which you have this evening formally espoused, and with whose interests you are now intimately identified. I shall call your attention therefore to some thoughts upon the nature and requirements of dental practice, with perhaps such supplementary reflections as the subject may suggest.

When we survey the entire field of dental practice in the

light of its highest requirements, we can not fail to be impressed with the diversity and, I may say, the antipodal nature of its demands upon us. It will require but a moment's reflection to enable any one to perceive a broad and well-defined line of distinction between the essential nature and corresponding requirements of dental practice and that of other departments of general medicine, and that this distinction is so pronounced as to render the former exceptional and anomalous. Invading the domains of medical science on the one hand, it levies unsparing contributions upon many of its most important departments, while on the other, it stretches far out into the realms of art, demanding even more inexorably still, tribute of its multitudinous processes and appliances, manual and mechanical.

Dentistry, viewed in its scientific aspect, contemplates an extended range of studies wholly worthy of the best exercises of the mind, and which can not be ignored by any one who aspires to completeness of qualification for the high and responsible duties of his calling. A very limited survey of the studies contemplated in the cultivation of the science of dentistry will serve to indicate their nature and scope.

The intimate relations of the teeth and fifth pair of nerves is, in itself, not only a study of curious interest, but one of prime importance to us as dental practitioners. Besides the many local sympathetic affections about the head and face which, by reason of their immediate association with the trifacial nerve, are clearly traceable, in many instances, to dental disorders or their sequellæ, acting as primary sources of irritation, there are, as shown by reports of well authenticated cases, still others of graver import, affecting remote organs, having a similar origin. "Almost inappreciable," says a well-known author, "are the beginnings of many fatal diseases, and could the grave reveal its secrets, I have not a doubt, when I consider the number of diseases produced by disordered teeth that it would be found that thousands are there in whom the first fatal impulse was given by a diseased state of these organs." Here are thoughts worthy of our highest consideration, and the author's views will be fully justified when we

come to reflect that the nervous system furnishes the conditions, either immediate or remote, under which the organic functions are performed, and that the fifth pair, from which the teeth are supplied, are so intimately connected, through its organic filaments, with the sympathetic system, as, according to Dr. Carpenter, to supply in the head the place of a separate ganglionic system. In the light of these anatomical and physiological facts, what an inviting field is here afforded the dental student for research and inquiry into the possible agencies which the diseases of the dental organs and their associate parts may have in perverting the functions of remote and vital organs of the body, and in the consequent production of some of the gravest and most formidable diseases known to pathology.

Not less inviting or less important are the studies which relate to the constitutional disturbances oftentimes incident to teething, and the influence of certain diseases peculiar to infancy and childhood, as exciting and predisposing causes of dental abnormalities; the agency of modified nutrition in promoting functional derangement and structural impairment of the mother's teeth during gestation and lactation; the value of therapeutic and hygienic treatment in respect to improved structural development of the teeth; the hereditary transmission of structural defects and mal-arrangements of the teeth, abnormalities in the conformation of the the jaws, and solutions of continuity in the hard and soft palates; the association of congenital idiocy with aberrations in the configuration of the maxillary bones; the periodical character and malarial origin of many distressing forms of functional and sympathetic disorders of the dental organs; the many structural lesions connected with the oral cavity, as cancrum oris, necrosis, morbid growths, destructive and malignant affections of scrofulous and venereal origin, as well as the more benign pathological conditions so frequently found implicating the pulp and membranes of the teeth, the tonsils, glands, nasal passages and maxillary sinuses.

This brief summary of subjects of study coming fairly within the province of the dental practitioner, is not by any means

intended to embrace every thing of professional interest or importance to us, but is suggestive rather of the general scope of medical acquirements contemplated in the scientific practice of dentistry. Certainly it comprehends enough to vindicate its claims to rank as a legitimate department of medicine.

I turn now for a few moments to consider it in its aspect of a mechanical art. I have said that there is a broad and fundamental line of demarkation between the essential nature of dental practice and that appertaining to the other departments of the healing art, and that this is so pronounced as to render the former phenomenal. It is well to bear this distinction in mind. To lose sight of it, is to breed false and mischievous notions of the true and inexorable demands and obligations imposed upon us as dentists.

Dentistry affords the only example within the entire range of medical practice where the treatment of important organs consists chiefly and essentially in the employment of manual processes. The anomolous character of operative practice grows out of the anomolous nature of dental caries. There is no department of dental practice held in higher esteem than that which relates to the conservative treatment of the natural teeth and measured by the frequency of its demands upon us, and the benefits conferred, it may fairly take precedence of all other departments of practice. Probably nine-tenths of all the cases presented for treatment relate to the operation of filling. Now, caries of the teeth is, in all its essential features, wholly unlike that affecting other portions of the osseous system, and demands for its remedial treatment modes of procedure quite as dissimilar. While the one is amenable to medical and surgical treatment and susceptible of reparation by the deposition and organization of new material, the other is irreparable except by the mechanical operation of filling. Caries of the teeth, in its uncomplicated form, though an abnormal condition, can scarcely, in any proper sense, be considered a diseased or pathological one, but is simply a breach of continuity in the structure of tooth bone induced by chemical solvents, and, when not associated with exposure of the

pulp, one of the most simple and benign of all structural lesions. A very large majority of all the cases submitted to us for treatment are of this uncomplicated kind, and it will scarcely be claimed that in respect to this class of cases, the operation of filling necessarily involves any more knowledge of the principles of medicine than some acquaintance with the structural characteristics of the teeth, and the anatomical relation of the pulp-chamber to the body of the tooth, that any one, whatever may be his medical attainments, who has proper perceptions of the simple mechanical principles involved in the preparation of the cavity, and is familiar with the working properties of the materials used, and expert in the use of needed instruments, may perform it as well as another. In the practice, therefore, of this most important, perhaps, of all departments, the application of the principles of medicine are clearly subordinated to the demands of manual or mechanical processes.

The differential characteristics of practice under consideration are still more sharply defined in what is called the mechanical department or, more properly, dental prosthesis.

The construction of artificial sets of teeth involves, in a less degree even than filling, the application of the principles of medicine, embracing little more than a knowledge of the anatomy of the jaws and associated parts, and the treatment of some of the simpler forms of diseased action sometimes incident to the wearing of artificial substitutes, while the processes concerned in their fabrication are largely manipulative and mechanical. The same remarks are equally applicable to dental obturators and artificial palates, and to the various appliances for the correction of dental irregularities. Manipulation and mechanism are the predominant and characteristic features entering into all these various practices, and we find here, as in the operative department, the same subordination of medical acquirements to manual and mechanical processes.

I have not considered the high order of manipulative skill which the right practice of these several branches imperatively demands, or their absolute or relative impor-

tance as departments of dentistry, since they do not enter into the question I wish to present this evening.

If now we contrast the operative and mechanical branches of dentistry with the practice of either general, ophthalmic, or aural surgery, we shall find that no such subordination of medical acquirements to manual and mechanical processes exists in respect to the latter as have been clearly shown to obtain in reference to the former.

The practice of general surgery, though largely manipulative, is, not like operations at the chair or in the laboratory, *constructive* in its character, or, in other words, is not *productive*.

Whatever manipulative or mechanical appliances are employed in the practice of general surgery, it is difficult to conceive of any operation which is purely manual or mechanical, or that does not involve, in some measure, medical treatment, local or constitutional, before or after the operation, or both. Surgical practice has always intimate, and, we may say, inseparable relation to some pathological condition of the soft or hard tissues, resulting either from accident or disease. Indeed, the practice of conservative surgery involves so largely the application of the principles of medicine, that we almost lose sight of its manipulative features except as something accessory to curative or remedial measures.

In the practice of ophthalmic and aural surgery, the oculist and aurist deals, almost exclusively, with morbid conditions, and what there is of a manipulative character in the practice bears the same intimate and inseparable relation to medical treatment as that which obtains in respect to the practice of general surgery, and cuts scarcely any figure at all in the general estimate of requirements.

Having called your attention to these cardinal differences, it only remains, gentlemen to make some application of the fact. I need hardly say that, in calling your attention to these fundamental differences, there has been any purpose of detracting from the equal claims of dentistry upon the public regard, or from the important bearing of its practice

upon the welfare of communities. Its creditable standing as one of the liberal professions is fully attested by its nearly half a score of colleges; by its numerous associations, national, state, district and local; by its multiplied and ably conducted journals; and by its text books, and minor works. I think it may be truthfully affirmed that, in all these respects, as well as in the character, intelligence, and general attainments of its professors, in the commensurateness of its resources to the needs of the unfortunate and afflicted, and in the beneficent character of its ministrations, if it does not stand squarely in advance of other special departments of general medicine, it will at least compare favorably with them.

My chief purpose in considering the anomalous character in respect to the nature and demands of dental practice, is to account in some satisfactory manner for our present condition of isolation as a department of medicine, and to vindicate the policy of our present distinctive educational system, and the wisdom and forecast of the early pioneers who, by the inauguration of this system, declared dentistry a separate and independent professional organization.

There is that in the educational appliances of medical colleges which fully meets all the demands and requirements of the medical specialties. Under that system they may, by reason of the nature and requirements of their several departments, acquire complete and symmetrical development, because the system of medical instruction is fully adapted to, and commensurate with, all their needs. But no one who will stop to consider the phenomenal nature of the requirements of our calling will doubt for a moment but that had dentistry, like the other branches, been grafted upon the medical profession, and cultivated and practiced under the same educational limitations and restrictions, it not only would not have acquired any proper development, but would have been utterly and hopelessly dwarfed. The late Dr. Eleazer Parmly enunciated a truth which is worthy of all acceptance as an aphorism when he declared, more than thirty years ago: "I regard it as one of the wildest chimeras of the age to suppose for a moment that a practical education in the difficult

art of dentistry can ever be attained in the class lecture rooms of the best medical college in the world."

It has doubtless often been a matter of curious speculation with many why dentistry, having relation to the study and treatment of important organs of the body, did not, like other special practices, have its origin within the body of the medical profession. A key to the solution of this interesting problem may be found, I think, in the fact that those who espoused it in the earlier part of the present century, recognizing as they undoubtedly did, that its practice necessarily embraced, and must always in any possible stage of future development embrace, an extended range of mechanical and manual processes and appliances, had an intelligent, and we may say intuitive, perception of the fact that there was nothing in the system of general medical education which could then, or ever afterward, meet in any sufficient degree the absolute and imperious demands of a practice which, compared with the established medical specialties, was wholly and unchangeably phenomenal. The broad recognition of the peculiar needs of their calling was the great centrifugal force acting in obedience to a law of necessity which, as the art advanced, carried it farther and farther away from the medical profession, until its status as an independent and self-asserting organization became fixed in 1840 by the establishment of the first dental college at Baltimore empowered to grant special degrees.

This was the first institution of the kind in the world, and being itself wholly anomalous was consistent with the character of the theory and practice it was ordained to teach. Its establishment was a formal pronunciamento declaring in round terms to the medical profession that dentistry had decided to "go it alone," and was a deliberate and voluntary renunciation of all claims to recognition of it as a medical specialty proper by the medical profession. It was the critical point of departure where dentistry elected to become a separate and distinctive organization, rather than have its practice merged in that of general medicine, on equal terms with the recognized specialties. The wisdom of this choice

has been fully vindicated in the marvelous progress of our profession since that time. It was a declaration of independence which should be annually commemorated by us with grateful hearts, for, in the fruits which it has borne, it has been to us as a profession what the declaration of 1776 has been to us as a nation. The inauguration of this pioneer school of dentistry was the grand nucleus from which has sprung, by gradual accretions, our present amplified system of professional education, symmetrical and rounded in in all its proportions, the crown and inspiration of American dentistry.

I have said that the founding of dental colleges, empowered by their charters to grant special degrees, was a voluntary renunciation of all claims to recognition of our calling as a medical specialty proper. Previous to the establishment of the Baltimore school, it would have been entirely practicable for its founders to have fixed the status of our department as a medical specialty by accepting the curriculum of the medical schools as a basis of dental education, with chairs for special instruction in our department. They were men generally not only of character, influence and liberal attainments, but many of them medical graduates, and nothing would have been easier than for them to have placed us as a department side by side with the recognized specialties. Indeed, such a policy was not only vehemently urged by a few at the time, but the experiment was actually tried in connection with the medical schools of that day, but the scheme was soon abandoned as wholly inadequate to meet the peculiar exigencies of dental practice, and many who were the first to take lectureships in the medical schools hastened to identify themselves with the "new departure" by accepting chairs in the dental college. Had the original plan been successfully inaugurated and enforced, we should to-day, as a department of medicine, occupy precisely the relation to the medical profession as general, aural and ophthalmic surgery. But the voluntary ignoring of the explicit requirement of a general medical education, which the acceptance of such a relation would have imposed, and the formal adoption of the

partial system of medical education embraced in the curriculum of our dental colleges, with its appropriate and distinguishing badge of Doctor in Dental Surgery, placed us at once without the pale of the recognized medical specialties. This is the self-imposed attitude of dentistry to-day, and while it is entitled to be regarded as a veritable department of medicine, and is so generally accredited by the medical faculty, yet the formal recognition of it as such by any standard of requirements applicable to the other departments mentioned, can never consistently be accorded to it without abandonment of its specific and distinctive methods of collegiate instruction, and its accompanying conferment of special degrees.

There is probably no subject now before the profession engrossing so much of its attention as that of dental education. What, if any, ulterior purposes of innovation upon the established system of collegiate instruction may be contemplated by the agitation of this subject, is a matter which addresses itself to the serious and thoughtful consideration of all who are friendly to that system, and desire its perpetuation intact. If the recently awakened interest in this subject contemplates only some supposed needful reforms in the working machinery of our dental colleges, or the rectification of any existing evils or shortcomings outside of these schools, we may all cross palms in mutual endeavors to provide the proper remedies. But if it is meant to force recognition of our calling as a medical specialty by such changes in the organic structure of these schools as shall seriously cripple their efficiency in respect to the adaptability of their methods of instruction to the peculiar needs of legitimate dentistry; or if it shall go farther and seek, through processes of disintegration, to ultimately subvert these institutions altogether, then it becomes the duty of the friends of our present system to rebuke, in unmeasured terms of disapprobation, all such revolutionary devices.

To be forewarned is to be forearmed. It does not require, I think, any very remarkable degree of penetration to discover in recent events and utterances a covert purpose of

attaining for our department the status of an accepted medical specialty at all hazards. Much of this recent talk about the necessity of a broader medical culture is but the prologue to disorganizing schemes not only menacing the unity and integrity of the profession, but putting in peril our entire system of dental education. There are unquiet spirits who are prepared, at any cost to the established order of things, to bridge over the chasm which yawns between them and open recognition. This is a grave accusation, perhaps, but is not made, I think, without sufficient warrant. One phase of the disorganizing elements at work is discovered in a recent undisguised assault upon the unification of the departments of dental practice with a deliberate proposition of dismemberment.

Another, and more insidious, and therefore more dangerous, outcropping of disaffection in the ranks shows itself in the school which has fastened itself upon the medical department of the Harvard University. The organization of this parasitical body, with its miserable affectation of superior medical attainments implied in its degree of Doctor in Dental Medicine, is a virtual repudiation of the independent organizations which have conferred upon the dentists engaged in the enterprise all the professional character and distinction they enjoy. Of this educational barnacle, Dr. Arthur is pleased to say: "Harvard University, to its great credit, has lately created under its charter a 'School of Dentistry,' fully admitting by this action the claim of dentistry to the position for which we are contending." (That of a medical specialty.) Whether this action was voluntary upon the part of the university, as implied here, or the result of officious and persistent solicitation and importunity on the part of certain ambitious gentlemen whose voracious appetites for medical pabulum were unappeased by the limited rations doled out by the established institutions, remains a chapter of unwritten history. That the Harvard school is content to be received by the university medical faculty with something of that patronizing condescension usually accorded to "poor relations," or that it should be satisfied to shine by a reflected

light in consideration of the distinction claimed for it by Dr. Arthur, is not a matter of any special concernment to us, except only so far as it indicates the animus which led to a departure from established methods of instruction. That man must indeed be dull of apprehension, I think, who does not discern in this movement a covert purpose of ultimate subversion of our present distinctive system of collegiate instruction, and the substitution of the medical curriculum. Let us see what warrant we have for this statement.

Dr. Robert Arthur, one of the foremost and most influential men in the profession, in an address before the last meeting of the Southern Dental Association, after an earnest appeal for a broader medical culture on the part of the dentist, says: "Where is this broad knowledge of the principles of medicine, and familiarity with the general features of disease to be obtained? From medical sources. If dentistry is a specialty of medicine it requires the study of medicine as much as ophthalmic surgery. Precisely the same necessity for it exists. 'The higher education, the broader culture of the physician,' is just what is needed at the present time by those who propose to engage in the practice of dentistry, to enable them to understand fully its requirements."

Just how dentists are to obtain this "broader medical culture of the physician," Dr. A. does not inform us. He is too clear-headed to suppose that it will ever be accomplished by the introduction of a full corps of medical teachers into our dental colleges. This, even if it were practicable, would be to convert our dental into medical schools, with one or two chairs devoted to the teaching of the more practical departments. It would be precisely the same in effect as carrying our department into the medical colleges, and attaching chairs for special instruction. Economically, the latter would be much the better plan. If we maintain our present organization, and make a course in the medical schools a prerequisite of admission to the dental colleges, there will no longer be any need of chairs in the latter devoted to teaching the so-called higher branches, and the dental curriculum would contemplate only instruction in such departments of den-

tal practice as would render the granting of the degree of Doctor in Dental Surgery too broad a farce to be tolerated.

It is but too apparent that much of this clamor for the broader medical culture of the physician will bear but one interpretation, and that is ultimate abandonment of our distinctive system of collegiate instruction and the acceptance of the medical curriculum as the basis of dental education. If any further evidence of this were wanting, it may be found in what a correspondent of the Philadelphia *Medical Times* has to say of the discussions of the Odontological Society of New York on the subject of dental education. As indicative of their temper and drift, he says:

"The subject of professional education and practice, which was discussed with unusual warmth, exhibited markedly the inclination entertained for a wider sphere of work, and portrayed plainly enough that the conversion of the dentist into the oral surgeon is only a question of time.

"The ranks of the common mother profession would receive a valuable addition in such gentlemen as compose the New York Odontological Society, and we most cordially unite with the speaker from your own city in trusting that the day is not distant when all shall be children of one Alma Mater, working in harmony and with a mutual interest for the common good of suffering humanity."

From all this it seems to me that sooner or later the issue must be made whether we are to fall back upon methods of instruction which the experience of the fathers in dentistry demonstrated a failure, or whether we shall stand in defense of a system which not only fully meets all the diversified and phenomenal requirements of practice, but which within the last half century has wrought a miracle of symmetrical development and growth in all its departments that has given renown to American dentistry and precedent distinction to its practitioners wherever the art and science of dentistry is known throughout the civilized world. To you, gentlemen, may be assigned some part in the final determination of this most important question.

I yield to no one in aspirations for a better acquaintance with the principles of medical science, but I desire such knowledge for its own sake, and as a helpful aid in the more intelligent discharge of my duties and responsibilities as a dentist. What we all, perhaps, most need is not so much a broader medical culture as a more exact and profound acquaintance with the medical branches already embraced in the curriculum of our dental colleges. I apprehend that there are no possible emergencies of dental practice which the right study of these branches, and a familiar acquaintance with the special textual and periodical literature of the profession, will not meet, and anything beyond these being a matter of accomplishment, any individual member of the profession is at liberty to so adorn himself if his time and inclinations prompt him. For one, I accepted dentistry nearly a quarter of a century ago for what it was then, and I esteem and honor it for what it is to-day, but more for its great beneficence and eminent usefulness than for any abstract quality of dignity or distinction that may attach to its practice. These will take care of themselves, we may rest assured. Consideration for our calling, both by the public and the medical faculty, will follow just in proportion as we shall practice it with right perceptions of the peculiar and phenomenal nature of its requirements. Whenever we loose sight of the exceptional aspects of our calling, and attempt to force it into positions and relations incompatible with the nature and demands of its practice, we at once lend ourselves to the work of weakening its influence, impairing its usefulness, and of circumscribing the grand possibilities of its future.

I thank you, gentlemen, for your patient attention to what I have had to say this evening upon subjects of mutual interest to us, and will close by expressing an earnest wish that you may realize the largest measure of succes in the pursuit of a calling which will afford you ample scope and opportunities for the conjoined services of both hands and brain. We have the highest assurance that your preliminary training in the school which has this evening honored you

with its indorsement will fitly qualify you for the creditable discharge of whatever duties the exigencies of practice may impose upon you. With repeated assurances of the best wishes of myself and others for your future health, happiness, and success in life, I bid you, gentlemen, good night.

PREVENTION AND TREATMENT OF PROXIMATE DECAY.

BY L. G. NOELL, D. D. S.

Read before the Mississippi Valley Dental Society, March 4th, 1875.

A beautiful story is told of how a heroic little Hollander, eight years old, spent a frosty night, with his chubby little hand thrust into a chink of one of the levees that serve to shut off the sea from the shores of Holland; and of how his suffering devotion was promptly rewarded by a grateful people, whose lands he had saved from the dreaded crevasse.

The ready good sense of this heroic child should teach us, as dentists, a useful lesson. Well did he know that the pretty trickling rill which he found would, in a few short hours, grow into a floodgate, through which the resistless sea would pour upon the homes of the sleeping peasants.

A favorite aphorism with a distinguished medical teacher was, "Check the beginnings," and often did he impress upon his students the importance of timely medication in every disease. But this truth, important and beautiful as it is, does not embody the high and holy ambition that should actuate the true physician; his aim should be to *prevent the occurrence of beginnings*. It should be his to guard the citadel of health

from every attack of disease. If his aim be lower than this he is undeserving of the high calling of doctor, for the word comes from *doctus*, a teacher. The physician or dentist is not a doctor, unless he be a teacher of hygiene—unless he instruct his patients in the laws of health, and teach them to ward off disease.

As dentists, we need this doctrine forcibly impressed upon us, and if its philanthropic principles could only be carried out to the fullest extent by all, etiological light would break in upon us, and our profession would make grand strides toward the goal of perfection. But it is not our purpose to dwell longer upon truths that have been often set forth by abler pens. We propose to offer a few suggestions as to the manner in which decay is to be prevented and arrested upon the proximate surfaces of the teeth.

There is much that is radical, and we think much that is highly injurious in the system professed by Dr. Arthur, in his work on the above subject; and yet there is in it that soul of truth which is said by philosophers to exist in all error, and which checked and guided by the many criticisms that have been made upon the book will be productive of much good.

It is not our design to pick flaws in Dr. Arthur's work—to notice little contradictions, or complain of its style—we leave this to the critics; but there are one or two points in his teaching, against which we do wish to enter our most solemn protest. The first of these is the idea that we are to anticipate decay, and separate teeth whose proximate surfaces are yet smooth, and showing no signs of disease. The enamel does resist decay longer than dentine, notwithstanding his effort to beat around this truth, and was evidently designed by the great Architect to protect the teeth from decay, as well as to furnish a hard triturating surface. Had not this been true, had it only been designed to furnish a hard grinding surface, the arrangement in the case of man—that animal whose teeth are most prone to decay—might have been similar to that in the teeth of the ruminantia. If it is true that the enamel resists decaying agents longer than dentine, it should never,

under any circumstances, be disturbed until decay has penetrated it.

The second point to which we would object, is the teaching that separations should be repeated when decay recurs. We think one separation is all that ought ever to be made, nor should that be carried to the extent of disfigurement; it should only be sufficient to secure a permanent opening between the teeth, and when this amount of cutting fails to remove the decay the operator should desist, and proceed to fill. Should the repeated cuttings recommended by Dr. Arthur be made, not only would great disfigurement result, but the teeth would be so crippled as masticators as to be of little value to the patient.

We propose the following course as our conception of that most advisable to be pursued in all cases where full control can be had of the patient from the age of two years up to the period of adolescence. We do not object to dental advice and attention, commencing with the eruption of the central incisors, but it is seldom that parents can be made to appreciate the necessity of this. Indeed, the opinion is generally prevalent that there is no need of a dentist until the shedding of the temporary set has commenced. We would, however, if possible, begin our treatment as soon as the temporary arch is completed, and directing our attention at first to the mother rather than the child, we would instruct her, as well as we could, in the nature and causes of decay, and the prophylactic measures she should adopt to preserve the teeth of her child. We would enjoin upon her the necessity of daily brushing, with a soft brush, and friction upon the gums with a napkin. These implements we would place in the hands of the mother or nurse, with definite instructions how to use them. We would impress upon the mother the necessity of frequent examinations, and explain to her, as clearly as possible, our plan for future proceedings. Let us follow up our hypothetical case, until it has reached the period of life when general osseous hardening commences, and dental decay is on the decline.

We fix no limit of frequency of examinations, for some cases will require more and others less attention. Let them

be made as often as the exigencies of the case may demand, and at each examination let a thorough and systematic inspection of the teeth be made, upon all of their surfaces. Whenever softening and disintegration of the enamel upon the proximate surfaces has occurred, let them be separated and thoroughly polished. As to the manner in which separations should be made, we have only to say that the spaces should be wide enough to secure a permanent opening down to the gum, and that they should be somewhat wider on the lingual than the buccal side. If bold cavities are revealed, in separating we would prefer to excavate and fill, rather than cut away so much tooth substance as would be sacrificed in an effort to remove every trace of decay. We believe that separations can be made between the molar teeth with less pain and inconvenience, with the corundum disks designed for the engine than with either chisel or file, but these should always be used with the shields for protecting the soft parts. An unfortunate slip in the mouth of one of these timorous little patients may make him ever after unmanageable. With the disk, there need be none of that chafing of the lips that inevitably accompanies the use of the file. The chisel will be found more applicable to the front teeth, in separating which it should always be employed. As to the manner in which they should be cut we shall speak more definitely further on. Cavities upon the crowns of the teeth must, of course, be filled.

As to the materials to be employed in filling children's teeth, it is not the province of this paper to discuss, but we will, in passing, merely indicate our preference for gutta percha. Where, from the behavior of the patient, a more durable filling may be desired, we would choose gold, believing it as easy of manipulation as tin. We would particularly recommend it for filling crown cavities in the deciduous teeth, for gutta percha does not here well withstand the friction of mastication. We believe the gutta percha will be found sufficiently durable, however, in all simple proximate cavities of the deciduous teeth—in all cases where the enamel is not broken down from the crowns, rendering the cavities

compound. We will seldom have this complication to contend with, where we have our patients fully under control, and where frequent examinations are made.

Thus we would watch over the deciduous teeth during their development, and endeavor by preventive as well as operative measures to retain them, until their allotted work should be done, and they should be eliminated by nature's original method—*i. e.*, by the absorption of their roots. We come next to the treatment of the permanent teeth, and now much of the difficulty which surrounded our work in the beginning has been removed, and we see our way more clearly to the end in view.

Our little patient can now be appealed to as an intelligent being, and while we do not at first dispense with her aid, we do not rely solely upon the mother for the execution of our orders.

The first teeth in the permanent set demanding our attention are the sixth year molars. In reference to these teeth we can not do better than to fully indorse the treatment which Dr. Arthur recommends. His plan is to cut away a portion of the distal surface of the second temporary molar as soon as the crown of the permanent tooth is fully formed. We do not object to this anticipation of decay in this instance, because the temporary tooth has now served out half of its term, and we would be willing to sacrifice a part of its grinding surface, in order to preserve the integrity of the enamel upon the sixth year molar. In making this separation, however, we must employ the chisel or safe-sided file, instead of the disk, for it is important to avoid injuring the enamel upon the permanent molar, as long as it is free from caries. The practice of extracting the sixth year molars at an early age, with a view to gaining space between the remaining teeth, thereby lessening their liability to decay, has been strongly recommended. Their extreme liability to decay, the crowded condition of the wisdom teeth, when they are retained, and the space gained for all occupants of the dental arch by their extraction, are points that have been urged with much spe-

ciousness by the advocates of this practice. We would never advise their removal unless their pulps should become exposed by caries, prior to the age of fourteen, in which case no attempt should be made to fill them, provided the bicuspid's are free from decay, or in a salvable condition. When the pulps of the first permanent molars are found dead, or when the chances for preserving their vitality are meager, we would advise extraction, even as late as the age of seventeen. If from the nature of the case we should deem it advisable to extract any of the teeth to secure room, we would prefer to remove bicuspid's, believing the first molars to be more useful masticators, and less liable to be attacked by caries than the bicuspid's after the age of twenty-one.

The question may be asked, Would you, in case the teeth be regularly arranged and free from caries, recommend the extraction of a pair of bicuspid's, above and below, for the purpose of gaining room and preventing decay?

We answer, very emphatically, no. Though in doing so we must differ with a gentleman for whose opinion we have a high regard.

If from marital misadaptation the patient should inherit large teeth with small jaws, and marked irregularity should exist, we would strongly recommend extraction, and our selection would be from the bicuspid's, allowing the condition of the case to determine whether we should remove the first or second.

The next spaces demanding our attention, will be those between the superior incisors. The inferior incisors are so generally exempt from decay that ordinary attention to cleanliness will, in the majority of cases, suffice for them.

We may now address our instructions to both mother and child, and in addition to the daily brushing and friction with the napkin, previously enjoined, we would advise the daily passage of floss silk through the spaces between all of the teeth. If these instructions are properly given and faithfully observed, in few instances will it be found necessary to separate or fill the incisor teeth upon their proximate surface. Of course there will be cases where the constitution is so feeble,

and the oral fluids so vitiated by disease that no amount of hygienic care will preserve the teeth from decay; but even in the frailest organizations much can be done to stay its progress by persistence in preventive measures.

If it is found necessary to separate between the incisor teeth—and this should not be resorted to unless the enamel is already softened by decay—the chisel will be found a valuable instrument to perform the heaviest part of the work, and we prefer to follow it with an oval, tapering file, finely cut. The spaces should be left wider at the lingual than the labial opening; indeed, the labial plate of enamel should be left untouched, if possible. The chisel should be permitted to do its deepest cutting at the point of deepest softening, coming out above the gum.* This will leave the opening in the best shape for finishing with the oval file and polishing tape. Under no circumstances should the chisel be carried through to the neck of the tooth, but a bulging portion of the crown is to be left, to prevent the approximation of the teeth. It will generally be found best to wedge apart, before commencing the operation. As we have already remarked, the space should only be sufficiently wide to remove the softened structure, and preserve a permanent opening. If deep cavities are revealed, rather than sacrifice the symmetry of the teeth in an effort at removal, we would desist and fill. Of course, all we have previously said of the importance of preserving the symmetry of the teeth applies with especial force to the permanent incisors. Owing to the double V shaped space, existing in the enamel contact of the next teeth, that will claim our attention—the bicuspid—it will be found more difficult to prevent them from being attacked on their proximate surfaces. As soon as softening is detected, they are to be separated, leaving the space widest at its lingual opening.

The buccal and lingual angles are to be rounded off, the surface thoroughly polished, and attention to cleanliness enjoined.

*As we are speaking of the superior incisors, it would perhaps be better to say below the gum.

Probably the next spaces requiring attention will be those between the second bicuspid and first molars. In course of time separation may be required between the first and second molars, canines and lateral incisors, and ultimately it may be between the second and third molars. In making all these separations we would observe the principles already given.

Of course, all crown cavities should be filled as soon as detected.

OPERATIVE VS. MECHANICAL DENTISTRY.

BY C. E. CASE, D. D. S.

It has been suggested by some parties that the separation of these two branches of the profession would be to the interest of both. Without any apologies for my inability to cope with some of the advocates of the movement, I will simply state my views in regard to it. Let us, for the sake of illustration, suppose that the divorce has been effected. What is the result? In the first place, we find a growing indifference on the part of many of our best operators for their brethren of the more lowly, but possibly equally important branch. They will finally come to the conclusion that it is beneath the dignity of the operative dentist to recognize the mere mechanic. On the other hand it will doubtless give rise to a number of dental carpenter shops the object of which will be to supply the people at large with arrangements with which to masticate. They will not be what they should be, unless a law be passed which will demand of the mechanical dentist what the present law does of all who are in the profession in this state. It will not be admitted by any one that any person who has not studied for

the profession will be able to make a set of teeth combining the requisite qualities. Or it may be the desire of the advocates of the movement to clear themselves of all the responsibility, so far as artificial dentures are concerned, in order that they may give their undivided attention to operative dentistry. It will be found then that, although they make more money, the people at large have poorer dentures. It may be also that the intention of some is to have some of the mechanical members of the profession establish laboratories and after the impressions and articulation is taken by them (the operative dentists) have the mechanics make the teeth and of course the credit would belong to the operator. Here now are several points which I don't think any dentist who is an honest gentleman would attempt to controvert. There is already a growing indifference between many of our best operators and the workmen in the laboratory. How often do we hear them say, "Oh! I never have any thing to do with the laboratory work. Indeed I have not done anything in the laboratory for ever so long. My man does all that and I have other things to attend to." I may mistake them, but I always feel as if there was a manifest indifference to the man and his work.

The gentleman in the parlor don't stoop so low as to recognize the man as his equal in skill. This is not an honest way of doing. There is many a prosperous dentist in the land who owes not a little of his reputation to the skill of his man. It is not beneath the dignity of any honest upright dentist to recognize the skill of his assistant or to visit the laboratory once in a while and thus show at least that he thinks there is such a person behind the scenes who wields the hammer, blows the forge, and does the dirty work. If the profession should kick the mechanical dentist out of doors people will still want artificial teeth and the gentleman of the operative persuasion who don't bother with such work refusing to make it, there will be a demand upon the mechanical dentists for it, and it must be admitted that until a man is a pretty fair operator he can not meet all the

requirements of the mechanical department. This, then, unless the law I spoke of is brought to bear, will throw open the doors of mechanical dentistry to a large number of professional quacks who will glut the market with things made of rubber and dignified by the name of teeth. It takes years of unremittent study to become a tolerably good dentist. Even then it taxes the ingenuity of a man who all these years has been familiarizing himself with the mouth and teeth to make a set of teeth for all the cases presented. How then shall we expect the mere mechanic to meet the want which the skilled operator sometimes fails upon.

If the responsibility is to be evaded by the operative and thrown on the mechanical dentist, who shall a confiding public rely upon? The operator will say, I fill and save teeth, but do not make them. The mechanic will say, I only make teeth; I did not prepare the mouth; I have not the liberty of treating your mouth as I should desire in order to make a success of the case, The law will not allow me to do anything but make your teeth. Or if the law is in force requiring the mechanical dentist to be a graduate or pass an examination it will be found that as soon as a person graduates or passes the examination he will at once step up a little higher and "Don't make artificial dentures."

As I have said before, the separation of the two branches may put money in to the pockets of the operators in some places but it certainly will militate against them in others. This will cause a division in the ranks and then possibly ill feelings will prevail between the dentists who are both operators and mechanics and those who are operators only. This will be deplorable. Suppose the laboratories spoken of be started and the operative dentist takes the impression and articulation and the teeth are made by the mechanic at the laboratory. Either the operator must admit that the work is not done in his office and under his supervision, or else he must sail under false colors and claim to have manufactured that which he has had nothing to do with. There are two temptations offered here. If the piece of work

is not successful he naturally shifts the responsibility on the maker, and the patient, in disgust, thinks that the operator should have had it made right as he took the impression and bite. Let us suppose however that the piece is a perfect success. How strong the temptation to claim all the glory when none of it of right belongs to him. Is this honesty?

These are only a few of the points which may be successfully used in the argument. Few men are perfect. Few but have their failings. Let us guard against doing anything which will create discord in the ranks of a profession which hitherto has always presented a solid unbroken line of defense to any and all enemies which have threatened an attack. The movement in my judgement will not only create enemies but will put arms into their hands which will certainly be used against us. Anything which is perfection must contain within itself all those elements and accomplishments which are necessary to perfection and success. Strip it of any one of these elements and what does it become, an absurdity. A failure at which any enemy will point with disdain. No! Gentlemen, let us keep all that we have and attain all that is possible. Our profession has recently made long strides. Why? Because its numbers are increasing and each increase brings more to our help and strength and we will find that "In unity there is strength" In strength there is victory.

ARTIFICIAL TEETH ON PROTRUDING GUMS.

BY W. E. DRISCOLL, BEDFORD, INDIANA.

All dentists, ("dentifiers" or "dentificians" if Drs. Allport, Mills, *et al* prefer) have been annoyed with cases where the

anterior part of the superior maxilla protrude so much that the most carefully adjusted porcelain gums or plain teeth can be easily detected as to their artificial character.

I need not remind the dentist (or "mechanician") how unsatisfactory such a result is to him or his patient. The remedy which I now suggest may have been tried by others, but they have failed to give their brethren the benefit of their experience so far as I know. And if I did not feel it a duty to give this to the profession I am sure I have no other motive in claiming attention. The method is much more practicable and satisfactory than may seem from the description I give which is as follows.

If the temporary set can be ready to place in the mouth within twenty-four hours after the teeth are extracted, proceed in all respects as usual until the model is ready for the reception of the teeth. Select plain teeth somewhat larger than usual for the six anterior ones, and let them *into* the model exactly where the natural ones stood, say at least one-fourth of an inch when the gum is very prominent. All the teeth, posterior to these six, to be set as usual and the plate finished up and placed in the mouth as soon as possible, when it will be found that the six front teeth go so far up into the gums that they do not become uncovered by any subsequent shrinkage of the gums or alveoli. And can not if properly selected and adjusted be detected at conversational distance from natural teeth, something that can not be truly affirmed of many sets of artificial teeth even in the most favorable mouths, and *never* in mouths where the gums protrude.

Sometimes I extract all except the six front teeth, and wait for the gums to shrink perfectly. Then take an impression, before extracting the front teeth; from the model cut off the plaster teeth, and in their places sink the plain, artificial teeth one-fourth of an inch beyond or deeper than the margin of the gum, then place the back teeth in position in the usual way, wax up and finish. When the patient comes for the plate extract the remaining six front teeth and place the plate at once into position. In this way but one plate is needed as the gums can not shrink from the teeth.

If one or more of the front teeth have been out until the alveoli have closed, then place the plain teeth as usual in such a case, and the remainder as above directed.

When a temporary set must be replaced by a permanent one, the front teeth can be set in the same depressions that were occupied by the temporary ones. I never extract for a partial set of front teeth now, until the plate is made and ready to be placed immediately in the mouth before any swelling or healing can take place. In this way the patient is relieved of the necessity of going an hour without the teeth. This however will be a great objection with those who would like to impose all the inconvenience and trouble possible upon those who elect to have artificial teeth instead of having their old shells filled. But like some other changes time is bringing, I do not know what is to be done about it.

If any one should hesitate to place the artificial teeth in the sockets of the natural ones from fear of subsequent irritation or retarded healing, I will say I have had no trouble of that kind in an experience with the plan of two years or a little over. If the front teeth are decayed even with the gum, then set the artificial teeth a little deeper in the model than if not so decayed, and use the pod beak root forceps in extracting and cut the process over each root uniform with its fellows.



DEATH FROM CHLOROFORM.

At Boston, on Saturday, October 3d, in the case of Linscott who died in a dentist's chair, from the inhalation of chloroform, the coroner's jury declared themselves of the opinion that, with our present knowledge of chloroform, its use as an anæsthetic is wholly unjustifiable, and they recommended the passage of a law forbidding its administration.

ADDRESS.

BY H. A. SMITH, D. D. S.

Read upon retiring from the Presidential Chair at the Ohio Dental Society, December 5, 1874.

The separation of the practice of dentistry into the operative or surgical and the so-called mechanical department, has for a long time been accepted by the profession as a most natural division. These two departments usually practiced together have formed a system, which until recently was in harmony.

In the physical body or system the first condition of complete health is, "That each organ performs its function unconsciously, unheeded." But let an organ announce its separate existence, then already is derangement there. So it may be said of the practice of dentistry. Each of the departments performed its function in harmony and without interruption. Now that which formerly seemed a whole, begins to show signs of wrong working; and one of the parts inclines to announce its separate existence, discord proclaims itself, and we no longer have the perfection of bodily well being.

Whence arises this discord? Why do the parts no longer adjust themselves? Nearly always when this condition, which, with our present light may be denominated as abnormal is spoken of, its cause is attributed to the decline of mechanical dentistry as an art. It is true, no doubt, that the introduction and almost universal use of the cheaper bases for artificial teeth, and the consequent influx to the ranks of the profession of a large number of persons, who, regarded simply as artisans, are possessed only of a secondary order of skill, has tended to create a feeling that the mechanical branch should not have a place, or be put on an equal footing professionally considered with the operative or surgical department. But may not the growth of this feeling also be

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traced largely to the fact that true dental science, which looks to the preservation of the dental organs rather than to their replacement, has greatly developed and improved? Whilst the one has passed on to a higher plane the other department has actually deteriorated. Thus the separation has become wider and wider, until dental mechanics, which is really the foster mother of operative dentistry, is in danger. The child having grown so big, is likely to crush the life out of the parent.

A discussion of the present status of mechanical dentistry involves the consideration of its claims to rank as of a profession. Indeed the whole question of the relation of dentistry to the profession of medicine might well be brought into review in this connection. But such is not my purpose. And just here I would prefer to say that I am well aware that for any one to offer any strictures upon the methods of mechanical dentistry of this day, is to incur the suspicion of an inclination to depreciate this particular branch of dentistry. But the fact that I was severely trained in my student days in what may be termed old fashioned dental mechanics, and have since spent many hours of hard labor in the dental laboratory, with results which were, I trust, creditable, in some degree, should relieve me from any such suspicion. On the contrary what I have to say on this subject has been suggested by considerations for the greatest good of the public and my fellow practitioners. That this branch of our calling is not worthy of the greatest respect, no one will dare to assert. And in fact, I doubt if there is any department in the mechanic arts, which is capable of bestowing a larger measure of positive good upon a suffering race than this, when rightly exercised. The fact that there are quite a number who largely give their attention to this department of practice, who take rank and compare favorably in point of culture and attainments with the best in the profession, is sufficient to stamp it as an honorable occupation. As a type of this class I might name Dr. John Allen, whom you all know, not only as an untiring advocate of artistic mechanical dentistry; but as well, his

zeal in enforcing the obligations we are under to practice conservative dentistry. He also goes a step further, and urges both in season and out of season, the importance of a regimen whereby a better development of the dental organ may be secured in the young. Such men as he, though devoting their time and talents to artificial dentistry would do honor to any department of medicine or surgery; and are fully competent, because of their intimate knowledge of the general science of dentistry to advise their patients as to the proper care and treatment of their teeth, and if such treatment does not come within their province as specialists they have the manhood to refer these persons to some one who is competent to perform the needful operations.

If the artificial branch of dentistry was in the hands of such as these, there would be no occasion for bringing this subject before you to-day. Then only the legitimate demand for artificial substitutes would be supplied. Instead of this however we find dental mechanics largely controlled by those who are not satisfied to supply the actual needs for artificial teeth, but really seek to create a demand for their wares by assuming to be competent to advise their patients as to the requirements of their case, with the result very frequently that their teeth are criminally sacrificed.

Now I think that all must admit that it is impossible for any one trained as many of these so-called dentists are in the laboratory only, to practice the higher departments of dentistry. And I mean by the higher departments, that knowledge and skill whereby we are enabled in a large proportion of cases, when placed entirely under our control to conserve the natural teeth. It includes also the ability to recognise and treat properly, the variety of abnormal conditions that come strictly within the province of dentistry; as well as a knowledge of that particular branch of dental science hitherto so sadly neglected—dental hygiene. It has justly been said, the time will soon come when it will be regarded as the greatest achievement of the medical art, not that this man or that is cured when he is sick, but when it prevents a whole community from falling ill. And of the dental practitioner it

will in time also be said, when he can, by advice or treatment, prevent disease of the dental organs, that he has achieved the highest success in the dental art.

There are great responsibilities which must of necessity attend to fit him to assume these duties and responsibilities. Each tath to the calling of a dentist, and the student who desires to qualify himself for the serious duties of his profession, can not afford to divide his time in any work which does not directly year there is a striving after a higher professional standard and this can only be met with a more thorough training of those who are about to enter upon this pursuit. Nothing short of a general knowledge of the human organism, and the modes and conditions of its action in health. A special knowledge of the structure and function of the organs with which he has most to do; their relations to other organs; the the diseases to which they are liable; and the best means of restoring them to health and usefulness will rightly qualify the dentist for his profession. Superadded to all this he must possess manipulative ability. He must be educated in his finger's end, before he can put in practice his varied acquirements.

Granting then that the dental practitioner ought to be a person who has pursued this range of study, is there anything in the domain of mechanical dentistry which calls for, or would stimulate one to strive for a mastery of the subjects I have named? It is true that the study of anatomy, especially of the facial regions, and perhaps physiology to a limited extent, may be regarded as a requisite in dental mechanics. But these would be pursued with a purpose similar to that which would influence the artist to undertake the study of these sciences. The mechanical dentist, imbued as he is with the practical spirit of the times, would regard all this study and training as a waste of effort.

The dental profession is covetous of a recognition as a part of the medical fraternity. But can we ever hope for such recognition while he who is simply able to construct a set of artificial teeth is regarded by the public and treated by ourselves as a qualified dental practitioner? And this leads us to consider the separation of these two branches of dental prac-

tice. A friend who is an experienced and accomplished dentist, recently said to me, that he regarded the agitation of this question of separation as premature, that it was slowly being effected, and in due season, the public would very generally discriminate between the operative and mechanical man, according to their need of either. And thus imperceptibly almost, and without any jarring or conflict of interests each branch of dentistry would take its proper place either as of a professional or a mechanical art.

All this may be true, but whether we will or no, this very question is now prominently before us. It has for a considerable time occupied the attention of thoughtful men in the profession, and has been more or less discussed in a quiet way amongst them. More lately however a few have been emboldened to take a decided stand and publicly urge the necessity of each department being pursued as a distinct calling. Notably Dr. Allport in his very able address recently delivered before the American Academy of Dental Science, urges in a forceable manner the need of such a separation. He says,—

“The yoking together of the two callings seemed to be a necessity of the then condition of the practice, at the time they were joined, and has resulted in great good. But the development of the practice has now brought us to a point where it is clear a new departure should be taken, the co-partnership dissolved and each department followed as a distinct and separate calling; both no longer in our private offices or in our colleges be taught as *one*; and the term dentist dropped from our nomenclature.”

Dr. Allport puts the subject fairly before the profession in the most radical form—even to proposing the adoption of new names for each of the departments. And since your Executive Committee proposes this very question for discussion at the present meeting it would seem that its agitation had already commenced. The consideration of this whole subject, in the order suggested, I have no doubt will prove profitable to all of us, if you will but give it that thoughtful attention which, as an intelligent body of practical dentists, you are capable of.

There are some difficulties in the way of this separation—especially outside of our cities and the more populous towns, that will be readily suggested to you, which it would be well for you to carefully examine, that they may not be given more weight than they deserve. Some of these objections have, all along through the history of medicine, been opposed to the separation of the practice into specialties. The divisions in practical medicine and surgery have steadily gone on, however, until we are threatened with a specialty for nearly every important organ of the human system. A reflex action will occur in due season, no doubt, and the practice of medicine and surgery will be separated into a limited number of departments that will be indicated as founded on a certain natural basis.

With our present knowledge of the subject, let us suppose for a moment that the diseases and defects of the dental organs were treated by the general surgeon, would not the fact that for the successful treatment and needed operations on the teeth a high degree of special training is requisite, clearly indicate the need of placing this department in the hands of specialists? For the same reasons the surgical treatment of the eye is very generally given over to the ophthalmologist.

If, then, it can be shown that there is quite enough in medical and surgical, or operative dentistry, to require the undivided attention of both the student and practitioner, to the exclusion of mechanical dentistry, should not this afford sufficient reason or basis for their separate practice?

As sometimes sung:

“If a man could be sure
That his life would endure
For the space of a hundred long years.”

He might, if a dentist, do much to perfect himself in the whole range of the science and art of his profession, which now, in the hurry and press of this mercenary age, seems impracticable. Superficial knowledge, the result of imperfect training, is a marked defect in the practice of the arts and sciences as well as the trades of the day. And we can

truthfully say that dentistry is in no sense an exception to the rule. And I put it to you, that unless it can be shown that the teaching of mechanical dentistry to our students will be an assistance or aid to qualify them for the practice of legitimate dentistry, it must be admitted to be a waste of time—if indeed it does not actually lead them away from the one central idea or thought which must ever animate those who expect to fill the true sphere of a dentist, viz: The importance of preserving the natural teeth. If the student or practitioner divides his attention with a pursuit that is practicably based upon our inability to accomplish this end, he soon comes to distrust himself and his abilities in the direction of conservative dentistry. And very soon his patrons partake of this weakening. Then follows the feeble apology that his patients do not want their teeth saved. And it is in this manner that whole communities are demoralized, as to a proper appreciation of conservative dentistry.

But no matter how desirable this separation may be, both for the welfare of the community and the elevation and appreciation of the profession, it can not be accomplished by any short-cut. No manifesto or resolution adopted by this Society would tend to hasten such a consummation. It is clearly within your province, however, I think, to discuss this subject, after the mature reflection which you have paid it, no doubt, and give expression to your individual opinions, unbiased and as free from that prejudice which self-interest and fondness for an old custom or practice is apt to engender.

This Society has frequently been commended for the zeal which its membership has ever shown, since its first organization, to assist in raising the standard of qualifications requisite for admission to the profession. That you originated—though somewhat as an experiment—and have maintained a law to regulate the practice of dentistry in the State, whereby a large number have been subjected to examination and required to show that they were possessed of attainments equal at least to those of the average legitimate practitioner is a declaration that you were not satisfied with the old order of things. And in the effort that is now being vigorously made to put dentistry abreast with the recognized specialties

of the medical art, it is expected that you may be found on the side and ready to recommend or adopt measures that seem wise and practicable, to speed the day when dentistry shall no longer be stigmatized as simply a mechanical art.

And though it may not be expected of those of you who are established in practice and bound down to old customs, either from habit or necessity, that you will give up legitimate business in either departments of dentistry, and at once become specialists; it will be no less your duty if you are satisfied that for the mutual interests of the profession and those who seek their services, that the practice should be divided to duly impress your conviction upon any who may be just entering upon the profession. A word spoken in season may lead the student to concentrate his energies in the direction most in accord with his tastes, and thus develop in himself the highest degree of proficiency possible to him.

A reform such as I have indicated can, in this way, be inaugurated, maintained and so speedily accomplished that some now present will wonder and ask why it was not always so.

It is not profitable, however, to indulge over much in anticipation of the future.

There are the questions of the hour. Subjects that present themselves and bear upon our everyday's duty. All these must receive the greater share of our attention. Carlyle has eloquently said:

"It is no very good symptom either of nations or individuals, that they deal much in ratiocination. Happy men are full of the present, for its bounty suffices them; and wise men, also, for its duties engage them. Our grand business undoubtedly is, not to *see* what lies dimly at a distance, but to *do* what lies clearly at hand.

"Know'st thou *Yesterday*, its aim and reason?

Work'st thou well *To-day* for worthy things?

Then calmly wait the *Morrow's* hidden season,

And fear not thou, what hap so e'er it brings."

REPORT ON DENTAL EDUCATION.

BY J. A. WATLING, D. D. S.

Read before the Michigan State Dental Society.

As Chairman of your Committee on Dental Education I submit for your consideration a few brief remarks.

This Association in 1866 adopted as a proviso, to Art. 8th Sec. 1, the following Resolution: "That no person shall be eligible to membership in this Association, who commences the practice of dentistry, after January 1st 1866, unless he be a graduate of a legally authorized dental college." My object in the allusion, is to show the progress that the profession of dentistry has made since that time. Many of you will remember that at the time of its adoption, this resolution was strongly contested by some on the ground of its being impolitic, fearing that we old fellows would in time all die out, and not enough of the rising generation appear with the degree of D. D. S. to fill our places, and consequently the Michigan Dental Association sink into oblivion for want of membership. But as an association, we are to-day flourishing, notwithstanding this resolution, and we think with regard to it, that it has done very much toward accomplishing the end sought, viz: that of stimulating young men to prepare themselves for the thorough practice of our profession in dental colleges.

The year following, this action was fortified by the Ohio Dental Association, adopting the same. Eight years have passed and now we see with pleasure, that the American Dental Association about to adopt an article similar for its constitution: that of admitting only graduates to membership in the future, and your Committee would here advise that the delegates from this Association to that body be instructed to vote and work for the adoption of such an amendment. It is time our profession cease to recognize any young man introducing himself to the public as a dentist, unless he has earned a diploma from some of our numerous dental or medical col-

leges. And just here let me suggest a change in our constitution of Art. 8th, Sec. 1st, last line, by inserting the words "or medical," so that it shall read, "That no person shall be eligible to membership in the Association, who commences the practice of dentistry after January 1st, 1866, unless he be a graduate of a legally authorized dental or medical college." I do this believing a student who has received a thorough medical education, and has had a good dental preceptorship is as well qualified for practice as one who has received the regular dental degree, and I have entertained the question a long time, whether it would not have been better for us had we never cut loose from the mother profession, but remained with her as the oculist and aurist have done; only establishing such chairs as are necessary for the specialty and it is with great interest that we note a growing disposition in that direction. There can be no doubt but that a practitioner of dentistry should attain as thorough medical knowledge as one who confines his attention to the diseases of the eye and ear. I think the profession has suffered great injustice at the hands of the Regents of our University in their not establishing a chair of dentistry long ago. It is within the remembrance of some of you, when it was promised us, as soon as the necessary funds should be at their disposal. No doubt it will require some increase of expense, most new departures do, but how long did that deter them from admitting ladies at an even greater expense, How few people realize the injury they do themselves by entrusting their teeth to ignorant practitioners, injuring, almost always, irremediable.

Thorough education is absolutely necessary to successful dentistry; it matters not how trivial the operation. But with the open doors of the University there is not the slightest excuse for a young man to offer his services to the public, until he has graduated. We notice a strong feeling among the members of the American Dental Association, to increase the term of studentship from two to three years, in this we would fully concur. Yet, how can a preceptor say to his student, that he will exact three years study of him when dental colleges require but two years at the most, and some

of these have been known to graduate extra smart students in much less time. The colleges are the levelers of the standard of the profession. If they will declare for a studentship of three years, the profession will at once acquiesce in the decree, and in no case are they excusable for granting honorary degrees, except where eminence has been attained by long years of toil and study. We can cite cases where young men have bought their diplomas. In such cases money was the only real qualification, and yet at home, they parade these diplomas to the public in a way that would, make a regular graduate who has, by attainments and merit received his, blush with shame, these things are very discouraging to those who have spent time as well as money and toiled hard for their well earned degree. I am of the opinion that colleges should be more rigid in the enforcement of their rules, and that students should be required to attend the full course of lectures or, in other words they should not be admitted after the course has begun, nor allowed to absent themselves during the term; it would be better also to increase the course to fully five months, with at least four lectures per day. A spring and fall course is a mere farce. so long as it is optional with the students whether they attend them. One suggestion and I will close, there is perhaps no part of the student's education more neglected in dental schools than a proper training in professional bearing and etiquette. On this subject, they should receive thorough instruction, they should be taught that they are entering upon a professional life not a trade; and that which would be admissible in a trademan's way of doing business is in direct violation of our code of ethics. Let our dental colleges be more thorough in this one particular, and we shall hear less complaint of dental quackery and the profession will have gained one step more in the standard of professions.

LOSS OF THE TONGUE.

BY D. R. JENNINGS, D. D. S.

Read before the Ohio State Dental Society.

Mrs. B. came to me some time in the year of 1864 with a mouthful of very badly decayed teeth and roots. And as a natural accompaniment the whole mucus surface of the mouth congested and all the secretions very viscid and fetid. She also complained of a stiffness of the tongue or as, she said, her "tongue felt heavy and hard to handle." I extracted the roots of fifteen teeth, three incisors and two canines below, that were loosened by accumulation of tartar. Her mouth healed very rapidly and assumed a good healthy look, her breath very much improved and she expressed herself as feeling very much better than she had for a long time, only her tongue continued to grow stiff and her articulation not as good as before her teeth were extracted. In from nine to ten months from the time her teeth were extracted I made for her a full set of teeth on rubber base. And in the course of a month or so she returned to have the lower plate trimmed or something done to them as they made her throat sore, as she thought. Knowing that it was not an unusual thing for the mucus surface to be sore by irritation; from the plate being too long, I examined the mouth and could not find any soreness but found the thyroid gland somewhat enlarged over its entire surface. And the tongue stiffer than when last I saw her. I did not see her again for nearly a year when she came to the office with her daughter to have some work done. I noticed that it required quite an effort on her part then to talk intelligibly. She told me she did not think she could talk at all without the teeth, as she had lost the use of her tongue almost entirely. I examined it, but could not find any very marked difference in it from what it should have been in its normal condition. She has the sense of taste and feeling in a very good degree, but it has lost its muscular action to a great

extent. On inquiry I learned that she had had several spells of spitting blood, that she thought came from the throat. I did not see her again until about two years ago. When she had lost the use of her tongue entirely, at least, so much so that when it was moved, it had to be done by the fingers. It still looked quite natural only perhaps some what darker in color, quite sensitive to the prick of any sharp instrument.

It was with great difficulty I could understand her conversation. The next I heard was, that on the 22d day of January last, while feeding herself in her usual manner, she felt a sensation of choking. And in the effort to expel the contents of the mouth and throat she threw the tongue out with the rest. This was followed by the most severe hemorrhage she had had at any time, the appearance of the tongue was normal with the exception of the right side being some wasted. It was neither softened or indurated. The tongue had ulcerated just above the hyoid bone and seems to have done so without her being aware of such a condition existing, having no discharge of pus or anything to indicate the diseased condition until it fell out as described above, leaving the ulcerated surface in view. The ulcerated surface healed in a short time. She is feeling (now some eight months since the occurrence) as well as for years, and articulates better than when she had the paralyzed tongue. Her sense of taste is as good as ever, and she only complains of the trouble she experiences in handling her food to masticate and also to perform the act of deglutition. She relishes her food, she thinks, better than before she lost her tongue, and she has gained quite a considerable in flesh.

Editorial.

THE SAME OLD STORY.

We have recently been repeatedly informed that the agents of the Dental Vulcanite Company, are notifying dentists that the use of celluloid for artificial dentures is an infringement of their patents for making dental plates of rubber! And that prosecutions will be commenced against all who dare to use it. Now so far as we are able to learn, the vulcanite company have no more claim upon celluloid or its use for dental purposes than they have upon anything else that does not belong to them. We doubt not they would demand license for the use of gold for dental purposes even to that of filling teeth, if there was a ghost of a hope that thier claim might be sustained.

As long as members of the profession will consent to pay money to this company to satisfy what all dentists regard as unjust claims, just so long will they make their claims and issue their threats of prosecution, execution and imprisonment. Dr. S. S. White who is the agent for the sale of celluloid, says, "I am not aware that Bacon has obtained a "controlling" or any other interest in the celluloid base, and as I am the sole agent for its sale I am sure such a thing could not happen without my knowledge." And now to all we say abandon rubber, and use celluloid. We are receiving evidences almost every day of the adaptability of celluloid for dental purposes. The following from Dr. W. P. Hall, is similar to many others. He says, "I have been using celluloid with great satisfaction to myself and patients in more than an hundred cases, and without a single case failing thus far. If it

shall prove durable in the mouth, retaining its integrity and color, there can be no doubt of its superiority to rubber, and will ere long entirely supersede it."

Dr. H. has large experience, and ventures his opinion and statement only after mature deliberation and experiment. The success of a half dozen reliable men with any mode or process, is worth more than the failures of a thousand. Let all try it.

COMMENCEMENT.

The Commencement exercises of the twenty-ninth annual session of the Ohio College of Dental Surgery was held on the evening of Thursday, March 4th, in the College building. A large number of the profession and friends of the institution were present. The exercises were those common upon such occasions. The degrees were conferred by Dr. James Taylor, President of the Board of Trustees, upon the following gentlemen, viz:

W. A. Spaulding, Minneapolis, Minn.

A. M. Callaham, Topeka, Kansas.

D. S. Dibble, Ashland, Ky.

C. E. Case, Cincinnati, Ohio.

C. B. Mower, Wooster, Ohio.

F. W. Stewart, Sidney, Ohio.

The annual address was delivered by Dr. Joseph Richardson, of Terre Haute, Ind., and the valedictory on behalf of class was delivered by Dr. W. A. Spaulding. Thus ended one of the most pleasant and satisfactory session ever held in this institution. A spring course will be held, beginning on Monday, April 5th, and continuing till the first of June.

The next annual session will begin on the 11th of October next.

Honorary degrees were conferred upon J. S. Rice, of Shelbyville, Ind., and H. M. Reid, of Cincinnati, Ohio.

THE OHIO DENTAL COLLEGE ASSOCIATION

Held its annual meeting on the 2d of March, 1875. The usual business was transacted, showing the financial affairs of the college to be in a very satisfactory condition.

The Board of Trustees consists of the following gentlemen: Jas. Taylor, President; H. A. Smith, Secretary; Jas. Leslie, J. G. Cameron, B. D. Wheeler, H. R. Smith, of Cincinnati; W. H. Morgan, of Nashville, Tenn.; Geo. W. Keely, Oxford, Ohio; H. J. McKillop, St. Louis, Mo.

THE MISSISSIPPI VALLEY DENTAL SOCIETY

Held its thirtieth annual session March 3d, 4th and 5th. There was a very full attendance—larger than for several years before. Quite a number of interesting and important subjects were presented and discussed. Several very good papers were read, which will appear in the pages of the REGISTER. A full report of the discussions is being prepared for publication. New methods of operating and modes of practice were fully considered, and many new and valuable ideas and suggestions were put forth.

There was a considerable increase in the membership.

This Society undoubtedly has a long career of usefulness before it yet. Long may it live and work.

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TREATMENT OF EXPOSED PULPS; AND CRITICISM OF DISCUSSIONS BEFORE THE OHIO STATE DENTAL SOCIETY.

BY J. S. KING, D. D. S., PITTSBURG, PA.

In looking over the January number of your interesting record, I was much interested in the perusal of the discussions that took place on Wednesday afternoon, December 3d, 1874, in the Ohio State Dental Society, during its late session held in the City of Columbus, Ohio. The discussions I refer to were based upon the following proposition: "The Preservation of the Pulps of Teeth," subdivisions as follows: "*a.* Systemic conditions modifying treatment and influencing its results."

"*b.* The least injurious and yet efficient agents for covering and protecting the dental pulp and likewise promoting the formation of secondary dentine."

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"c. Causes of failure."

In the remarks that followed the statement of the subject, with its interesting subdivisions, I was much interested. Also I was much amused by the generalizations indulged in by those participating in the discussions that took place on the subject. Dr. C. R. Butler, of Cleveland, in his opening remarks, gave expression to some trite thoughts and true sayings associated with the subject. Also Drs. Watt, Rehwinkel and Taft following Dr. Butler said many things good and true. Yet at times during the discussion each one seemed to be dancing to fancy time on the margins of the outer circle, which they seemed to have drawn around the subject under discussion. In those discussions, but little was evolved that can be regarded as practical, or that would lead the dental profession to adopt a mode of practice in the treatment of exposed tooth pulps. Beneficial, alike to themselves and to their patrons, so far as I could perceive, there was not a single presentation of a specific, or even of a general mode of practice in pulp treatment, by any one of the parties participating in the discussions, which would enable the enquiring dentist to take a step forward with any assurance of success in the all important operation of treating and preserving the vitality of exposed pulp tissues. Dr. Butler affirms that, "We can easily conceive of systemic conditions which would be unfavorable in the accomplishment of anything like satisfactory results." This I admit may be true. Yet the admission or admonition need not carry with it any note of alarm, preventing the dental practitioner from immediately proceeding to treat and cover exposed vital pulp tissue of teeth whenever and wheresoever discovered.

Dr. Butler, in the course of his remarks, made use of the following, "There is a variety of modifying phases which are to be admitted and considered. In some cases we may almost abuse the pulp tissue, and yet it persistently retains its vitality; cut away a portion of it and even apply escharotics, as is the mistaken practice of some, (and I have known cases where arsenic has been applied) and yet the pulp has appeared almost entirely unaffected by the abuse. On the

other hand, I have seen cases where the least exposure has been sufficient to destroy the pulp. So that we can only expect to arrive at anything like an intelligent course of practice to be pursued, by a careful observation of the structure of tissues involved also it is an abuse of the pulp, the temperament and organization of the patient to govern us in our efforts to restore to health and preserve the pulp." The thoughts contained in the above quotation are in some particulars correct. But in the use and application made of them, in these discussions on the subject under consideration, they are in many particulars incorrect. By means of the peculiar manner of their use the Doctor seems to have planted around his "intelligent course of practice" a formidable hedge, composed as he seems to think of very refractory materials, such as "structure of tissues involved the temperament and organization of the patient." These real or fancied conditions of our patients, be they physiological or pathological, are worthy of our observation; but so far as they relate to the subject of the treatment and preservation of the vitality of exposed pulp tissue of teeth, they are matters of mere secondary consideration, and should not for a moment prevent an immediate procedure on the part of the dental practitioner to cover any case of exposed pulp tissue placed under his care. Impliedly, the Doctor condemns the use of arsenic, characterizing its use as an abuse of the pulp. This position I heartily commend to the consideration of every member of the profession; "cutting away a portion of the pulp and even applying escharotics," he claims "Is the mistaken practice of some," and is an abuse. The cutting I admit is an abuse of the pulp; it is also an abuse to allow it exposed even for a moment, yet the necessities of the case will some times compel us to do both. In our text books, the classification of those remedies or agents called escharotics may be some what arbitrary, yet in the main they are correct.

But in discussing the subject of exposed pulp tissues and its treatment, it will not serve the best interests of our patrons nor yet of science, for us to condemn indiscriminately the use of a whole family of medicines, remedies or agents

as a band of nuisances and outlaws simply because of their classification as being escharotics. Were we to call the given names of the whole family, perhaps we might justly condemn their use in the treatment of exposed pulp tissue, in the proportion of ninety-nine one-hundredths of the whole, yet the remaining one-hundredth may chance to be all that we could wish for in the accomplishment of our purposes. If a general fact of this character can be established by the experience of any given number of successful and reputable practitioners, then it becomes a duty to investigate by individual experiment the truth or falsity of such statements. In all cases of exposed vital pulp tissues of the teeth, it is correct practice to first cover the point of exposure; and secondly, to rightly diagnose and treat any existing pathological systemic conditions. This I conceive to be the ground or basis on which to discuss this subject of the treatment of exposed pulp tissue, utterly ignoring any given fancy in regard to individual temperaments, etc.

Dr. Watt, in his remarks upon the subject, said, "If you find only slight exposure and no pain, protect the pulp from extraneous matter soon as possible." On my basis of procedure we protect an exposed vital pulp from extraneous matter in all cases as soon as possible, whether the exposure be great or slight, whether accompanied with inflammatory action or pain, or without pain; and if the right materials are properly applied, all will do well, as in the case of the surgeon when caring for an ordinary wound. Dr. Taft's remarks on the subject seemed to be in unison with those preceeding. If the Doctor had been discussing the propriety and absolute necessity of a medico-dental education, his remarks would have been equally applicable and practical. He talks well without giving any data in regard to either a specific or general mode of treatment which would most likely be successful in any given case. He passes back and forth in the same groove marked out by those preceeding him in the discussion of the subject. He says, "To study as Dr. Watt has said, conditions and temperament, and endeavor to learn all about the peculiarities of the case, and what

the requirements are, and then perform your operation in conformity with those requirements, constitutes the elements of success." These remarks of the Doctor just quoted, in some particulars, are undoubtedly true; but they are blinding counsel in the way they are given. They are simply learned phrases containing many of the elements of truth, but built upon a false basis, as may be seen in the following quotations from his subsequent remarks on the subject: "You hear many say, I treated a pulp so and so, without even reference to conditions, you may rest assured that he who talks on that wise does not recognize conditions, he has settled in a groove, and he runs back and forth continually, never leaving it, he gives his mode of treatment by successive steps, without making reference to systemic or local condition, thus indicating that he fails to recognise them, I predict that his operations will eventuate in failure nine cases out of ten.

These remarks just quoted may pass current as society discourse or as associational homily, but in their relations to the subject under consideration they will not answer for practical uses. Simply because they lead the dental practitioner into the error of taking first cognizance of systemic and local conditions, and treating the same, before proceeding to cover and thereby protect the exposed pulp tissue of teeth. If the form of the Doctor's argument had been to first cover the exposed pulp, and then treat systemic and local conditions, not even a single individual in the profession could justly interpose any objection to his position. As he then would be in harmony with all the facts and requirements associated with and pertaining to the important operation of treating exposed pulp tissue and thereby preserving the vitality of the pulp, providing that he accompanied the proposition with a detail of the materials or agents used, and the manner of their use. If Doctor Taft pursues a mode, method or manner of treating exposed pulps, wherein he is successful in three or four cases in five, excluding the average condition of exposed pulps and of patients that usually call for the services of the dental practitioner; why not detail his man-

ner of proceeding? Perhaps his reply to this proposition can be discovered a little further on in the course of his remarks, where he seems to have evaded giving a direct answer to a question he so adroitly places in the mouths of his auditors, whose professional attainments and average intelligence has opened the way for them to a membership in the Ohio State Dental Society. The Doctor has just been urging the necessity of an honest endeavor on the part of the dentist, to change all the unfavorable conditions to a more favorable state when suddenly he placed his audience in the attitude of asking the following question: "What can I do?" The answer thereto comes from himself in the following words: "We can not have a course of lectures three or six months long to discuss the principles involved." I will accept this as his reply to the above proposition, yet I can not think the labor of three or six months was necessary on that occasion to so enlighten and instruct his auditors, (and others of equal ability and position) to that extent which would enable any one of them to successfully accomplish the simple yet invaluable operation of successfully covering exposed pulp tissue of human teeth, and thereby preserving the vitality of the same. Thus the Doctor flees from a satisfactory and practical response to his own interrogation, and continues his remarks in an endeavor to answer the following query: "Now what are some of the conditions which would modify treatment of the pulp?" In answer to this query the Doctor presents the following supposed systemic conditions, "Suppose then blood is in an impoverished condition." "Is deficient in some important and indispensable constituent, perhaps the patient is anæmic, or there is a deficiency of fibrin, or red or white corpuscles of the blood," or "The corpuscles may be defective and so be unable to perform their proper functions," and in addition to these varied pathological systemic conditions, he enumerates others where insidious poisons at work, instancing "malarial poisons" saying to his audience the following: "If you were going to select cases for treatment, you certainly would avoid those which you know were charged with malaria" Now

any one or all of these enumerated pathological systemic conditions may possibly seem to be insuperable barriers to immediate success in the treatment of exposed pulp tissue, so far as Doctor Taft's experience and that of the Ohio State Dental Society is concerned; but with those whose experiences prove the error of the position contended for in these discussions, these supposed unfavorable systemic conditions, either separately or collectively, would not in any degree prevent them from immediately proceeding to cover exposed pulp tissue of teeth when placed under their care, any more than the same conditions would prevent the operative surgeon from immediately proceeding to close an ordinary flesh wound or incision in the persons of the same class of patients. This being accomplished, they will as a secondary consideration, then proceed to give attention to and treat unfavorable systemic conditions, or which is more proper, refer the case to the family physician.

Dr. Rehwinkel remarks on the subject under consideration were as general and vague in their tone as were those of Drs. Butler, Watt and Taft. In so far as they related to "the least injurious and yet efficient agents for covering and protecting the dental pulp."

The Doctor sets out in his remarks by yielding a hearty concurrence to the remarks of Dr. Watt and then pursues the same general tone of argument. When speaking of mere exposure of the pulp he says: "If the pulp therefore is accidentally wounded, so far from feeling discouraged as to the final result of an attempt to save it, it would not disturb me in the least." This is a noble phrase; this language has in it the right ring, it is good doctrine, but why does the doctor follow these words with the following phrase: "I would be very careful however what agents I employed." And then so persistently refrain from even naming the "agents" he would "employ" under any given or supposed systemic conditions. Again he says, "I should think it perfect folly to put creosote upon a pulp which is in a healthy condition, Why? Because it is an escharotic." Does the Doctor in the use of the above language mean to say that he would put creosote upon

an unhealthy pulp, if so, the force of such an argument would be that an unhealthy pulp is better able to bear the action of that escharotic, than is a healthy pulp, such an argument being fallacious, therefore, I will presume that he entirely ignores the use of creosote in pulp treatment; but can this be? For he says in another place "We would not think of using creosote in its full strength upon an ordinary wound in order to induce it to heal by first intention we might use it diluted to sponge out the wound." This last argument is that creosote diluted, is an agent that will promote or induce healing by first intention in an ordinary wound. If this be true, why will it not induce healing by first intention in the case of an ordinary wound in healthy pulp tissue? Again, the Doctor says, "We should employ the simplest treatment and mildest remedies" giving his reasons for so doing in the following language: "Because in the very elements of the blood we have recuperative power." In all candor I would ask what is "the simplest treatment" and what "the mildest remedy?" Why not name some of them and the manner of their use with a statement of the systemic conditions indicating their use? I admit that the Doctor has doubtfully expressed the thought that "Lacto-phosphate of lime is of value in simple and uncomplicated cases." As this agent has been used only about one year in this relation, the Doctor therefore seems to be somewhat chary in his semi-endorsement of the same. One of the remarkable things (as reported in the REGISTER) to which the doctor gave utterance was the following: "If you want to go further and assist the formation of secondary dentine we may employ escharotics." I ask what escharotics will assist in the formation of secondary dentine? Why are they not given by their appropriate names so that there need not be any possibility of mistake? Dr. Watt, in his remarks, stated that "some time ago" he had "a young lady" patient, "The perfect picture of health, which circumstance he thought was favorable to an attempt to save the pulp." Good health in this case was certainly the young lady's good fortune, as well as for the life of her tooth. However, the Doctor capped the pulp "with a shav-

ing of Hill's stopping." Which subsequently he removed. When, lo! "There was a little button of secondary dentine protecting the pulp." In this case, the Doctor was frank enough to state what agent he used in capping the pulp. He did not claim however that Hill's stopping would assist in the formation of secondary dentine. Nor did he claim superiority for it over other agents in aiding and promoting the formation of secondary dentine. He seems only to have related simply an incident occurring in the course of his practice. Yet in this lone incident was concentrated, seemingly, the very acme of the Doctors wishes, a deposit of secondary dentine over the former exposed pulp. The argument seems to be, that unless the pulp becomes protected by secondary dentine, it cannot be saved. However, this particular case of Dr. Watt was certainly very remarkable, especially so, when we consider the youth and the certified good health, or systemic conditions of the patient. If in the stead of good health, the Doctor's patient had been the victim of exsanguinity or had been suffering from the effects of acute inflammatory rheumatism or of complicated neuralgic affections, in which cases, the deposit of secondary dentine is a thing of common occurrence in the form of hypertrophy or of exostosis upon the peripheral surfaces of roots of teeth, and sometimes in the form of nodules adhering to the inner walls of the pulp chamber, where it is considered to be, and is truly a pathological result. Therefore in this particular case, where it was most unlikely to occur, it was certainly somewhat anomolus, and worthy the notice and attention the Doctor gave it. Now if secondary dentine is a good thing in those points or localities where it may be useful, and if there are any known escharotics as intimated by Dr. Rehwinkel, that will assist in the formation thereof, why did not the Doctor in consideration of his professional relations distinctly name them, and set forth the proper method of their use, with an account or statement of the local or systemic conditions indicating the propriety of their use.

Dr. Butler says, that the use of escharotics, "is the mistaken practice of some." There was evidently in some

points a conflict of opinion among the savants. Whilst the others (the majority perhaps) they seemed to harmonize wonderfully.

Dr. Rehwinkel, near the close of his remarks, said that: "The great secret of success is not to over do." Also he says that, "the causes of failure can be summed up as follows: want of skill in manipulation, want of judgment in selecting remedies, etc., and above all in doing too much." There is but a little doubt but that the failure to do, as well as that of overdoing will often result in disaster, so far as I can perceive, judging as I do from the REGISTER's report of the discussions occurring in the Ohio State Dental Society, the success attained by the society in the discussion of the subject was in but one direction; the extreme necessity of a medical education in order to be qualified or enabled to properly and successfully treat exposed pulp tissue of the teeth. Their failure consisted in doing too little, in the way of pointing out the remedies or agents that should be used in the pulp treatment and the manner of their use, whether used in accordance with given systemic conditions, or regardless of such conditions I ask did they not fail in the discharge of their duties to the public at large (inasmuch as the Ohio State Dental Society is one of the acknowledged lights in the profession in said state) in not commending or indicating in any manner a method or system of treatment, that would promise even a degree of success in the hands of any one possessed of average skill and attainments professionally considered? Excepting only their laudations of qualifications and endowments to be derived from a medical education. But in this instance, even this qualification has signally failed to enlighten us on the best or "The least injurious and yet efficient agents for covering and protecting the dental pulp."

My position on the subject of pulp treatment has been quite plainly indicated in the foregoing pages of this paper. As plainly as I can do so, I will now proceed to state my system of treating exposed pulp tissue, and the remedies or agents I use. In all cases of exposed pulps placed under my care, I immediately proceed to cleanse the cavity con-

taining the exposure as thoroughly as though I were at once to proceed and fill the same with gold. This done, I then proceed to cover the pulp immediately, without regard to constitutional idiosyncrasies or tendencies or peculiarities of temperament or of any general unfavorable systemic conditions nor do my "operations eventuate in failure nine cases out of ten." The "efficient agents" I make use of are creosote, oxide of zinc and liquid chloride of zinc. The manner of their use is as follows: Upon a glass or porcelain slab, place a small parcel of oxide of zinc mix the same to consistency of a stiff paste by adding to it creosote with this paste lightly cover the exposed pulp. It is absolutely necessary that the entire exposure be covered with the creosote paste, and that this covering extend some little distance past the borders of the orifice of exposure, this covering now being in place and not allowed to spread out over the side walls of the cavity, but strictly confined to its proper limit, is now ready for the second or outer covering. I then proceed to mix (upon the same or separate slab) to the consistency of a soft paste oxide of zinc with liquid chloride of zinc (this is commonly called oxychloride of zinc) as quickly as possible, I place this second mixture in the cavity, being careful not to displace my first covering, thus I fill the cavity to the desired fullness. If the exposure has been unaccompanied with pain, I proceed immediately to cut away sufficient of the outer covering of oxychloride to enable me at once to proceed to insert thereon a good gold filling. But if the pulp has been largely exposed or has been painful. I dismiss my patient for ten days or longer, and subsequently finish the operation with gold. Occasionally in the more aggravated cases of exposure it becomes necessary to remove the covering and renew the same on account of unsubdued inflammatory action in the pulp tissue, or on account of failure in not properly covering the pulp this I am pleased to say is of rare occurrence. Occasionally, a pulp may be covered at a point in time or in its condition where the vital forces have just ceased their normal action, or in other words just at that point where vitality becomes

extinct. If so, trouble will inevitably follow such a condition, this system of treatment has been remarkably successful in my practice, and equally as successful in the practice of others, to whom I have communicated my method of treatment.

My paper has already doubled the limit I had in contemplation when I took up my pen to write this article, yet I felt that justice requires that I give in this article a synopsis of a report handed me some ten days ago by my friend and co-laborer in the profession, W. F. Fundenberg, M. D., for many years a practicing dentist in this city, and brother-in-law to the late S. P. Hulihen, M. D., of Wheeling, W. Va. Two years and four months ago I communicated to Dr. Fundenberg my method of treating pulp exposures, requesting him to try some experiments in my method of treatment, and to keep a just and true record of the cases he might treat, so far as he could ascertain the facts in relation thereto; this he claims to have done, and the following is a synopsis of his report:

Whole number of pulp exposures covered in a period of two years and three months—one hundred and three. Those that were known to be successful up to February 1st, 1875, were seventy-one. Those not known and from whom a report was not received twenty-six, those that were known to be failures were six, three of these six failures occurred in the first six cases treated by Dr. Fundenberg.

This report of the experience of Dr. Fundenberg in my mode of treatment is certainly encouraging. It is not an isolated experience; there are others pursuing the same system of treatment who are equally successful, all of whom are regardless of constitutional idiosyncrasies, or of real or fancied differences or peculiarities in temperament and organization of systemic conditions, except only as matters of secondary consideration, to be properly cared for when the first duties of the dentist have been attended to and properly performed.

ALVEOLAR ABSCESS.—TREATMENT WITH CARVACROL.

BY H. L. SAGE, D. D. S.

In my report on Dental Therapeutics, published in the Transactions of the American Dental Association, I introduced some statements in regard to cases of alveolar abscess in which carvacrol alone was employed in their treatment with success. I wish now to report several cases in addition, and at some leisure moment may refer, by some cases in practice, to its virtues in other directions.

Mr. J. C., age about sixty, sanguine temperament; called Nov. 12th, 1873, with a large swelling over the right first superior bicuspid.

This tooth was worn down by a pipe stem, and the pulp finally died in consequence, though the irritation produced by the abrasion had kept it sealed up by a deposit of secondary dentine.

First step: lanced the gum and emptied the swelling of pus. Next, opened and cleansed the pulp cavity, which was not so large as in softer teeth, this tooth being of the hard dense, yellow kind. Pumped carvacrol into the root, but it failed to appear through the gum. Drilled through the alveolus without difficulty and with scarcely any pain, striking the apex of the root.

Carried carvacroled silk (silk saturated with carvacrol) through the opening in the gum and alveolus into the abscess, leaving the end protruding, with instructions to the patient to remove it before morning if much swelling followed. (He pulled out the silk on the following day.) Filled the root temporarily with carvacroled floss silk. The carvacrol caused no smarting or burning sensation in this case, probably on account of the presence of much pus on the secreting surface of the abscess. (?) After an interval of two days Mr. C.

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again appeared. Some pus present, but swelling reduced. Injected carvacrol into the abscess through the fistula.

May 2d, 1873, saw the case for the first time since making the last application. Found the gum over the tooth hard and perfectly healthy, the fistula closed, and everything indicating the entire removal of the disease. The parts have been entirely comfortable ever since.

W. S. H., a young man of bilious temperament, called May 5, 1873, with the right superior lateral incisor dead. Removed pulp and cleansed the root. Pumped in carvacrol; no sensation. This indicated that the medicines did not pass through the nerve canal into the socket, though not positive proof, as the treatment of some recent cases has shown. Saturated floss silk with carvacrol and filled the root therewith, closing the crown cavity with oxychloride of zinc. No trouble occurred. After ten days, removed the temporary filling and filled the root and crown cavity with gold.

May 15th: Mr. H. again called.

Left superior lateral incisor, dead and offensive. Drilled into the palatine surface, removed decomposed portions of pulp, and pumped in carvacrol, which was followed by the burning, peppery sensation in the socket, at the end of the root. There had been no pulp exposure in this tooth, to cause death, though just previously, the pulp then being dead, I had filled a cavity in the anterior proximal surface. Filled pulp cavity with carvacroled floss silk, and the orifice with oxychloride.

In three days the patient came in with face swollen over the tooth. Lanced the gum at the apex of the root and drilled through the alveolus striking the root. Not being able to proceed with the treatment, on account of the hemorrhage, placed a cotton pellet saturated with tinct. iodine in the orifice of the fistula, to keep it from closing, but he removed it in the course of an hour.

Next day the swelling having increased, prescribed a dressing of cold water, stimulated with alcohol, vinum opii or brandy. Under this treatment the inflammation rapidly subsided. Then treated the abscess with carvacrol until a cure

was affected. Subsequently filled the root and crown cavity with gold.

A. S. T., lawyer, age about fifty. Tooth, left first superior bicuspid, abscessed, with fistula in the gum, discharging thick, cheesy, curd-like pus.

Chronic case; two roots. Treated by pumping carvacrol through the buccal root, which appeared through the fistula, causing a very severe burning sensation in the socket and flushing the face.

This treatment was given May 12, 1873, and the root and crown temporarily filled as in the cases before cited. Probably it was repeated at a subsequent sitting.

February 17, 1874, the temporary filling was removed and gold substituted. The fistula was found to be closed by hard cicatricial tissue and the parts healthy.

Mrs. S. G., middle aged lady, in good condition called February 4, 1874. Tooth, left 2d superior bicuspid, with a root filling of cotton and a crown filling of Hill's stopping.

Soreness over the root at the apex; no fistula. Cleaned out the root and pumped in carvacrol which did not seem to pass through the apical foramen. Filled temporarily as in the cases before repeated, saturating the silk with carvacrol. When the patient again appeared (at her convenience) the soreness was but slight.

Repeated the treatment two or three times according to convenience, when the tooth was ready for the reception of a permanent filling.

The foregoing cases, from among others, are cited not because they present phases different from those which ordinarily appear, but to show that carvacrol has been and may be made effectual in the treatment of alveolar abscess.

More than two years since, the writer successfully employed this agent in the treatment of a chronic case of seventeen years standing, and was probably the first to practically demonstrate its value in this direction. Other agents, doubtless, may be and are more suitable in certain cases. I make use of them when the indications warrant.

Carvacrol, being possessed of mild caustic or escharotic

properties, may be less rapid in changing a pus secreting to a "plasm producing" surface, than in cases where more caustic agents are required; at the same time it is less irritating and therefore may be safer, from the fact that the danger from over medication is less imminent. Indeed it seems many times to reduce inflammation.

Carvacrol may be more potent in some other directions than in the treatment of alveolar abscess; for instance, as a sedative to exposed pulps, as an obtunder of sensitive dentine for which it is pre-eminently adapted, and stands without an equal. It will penetrate sound dentine almost immediately, as is evidenced by the fact that it will often remove the sensitiveness from the abraded surfaces of teeth in from one to two minutes, whether the abrasion is spontaneous or mechanical—a statement admitting of positive proof. But it is not intended to enlarge upon these points at present.

MALLETING.

BY H. V. KAGEY, DENTIST, ARCOLA, ILL.

"Be not the first, by whom the new is tried;
Not the last, to lay the old aside."

"Over malleting is one of the evils of the practice of the day," Dental Cosmos, No.1 vol. xvii. page 54. Here is the ring of a characteristic tone, which seems to be cropping out, more or less, in all our recent conventions. We welcome it as the harbinger of more matured and conservative thought. It wins the appellation of heroic—when weak, timorous humanity, can stand up on her own individuality and declare her conscientious scruples! What craven, tongue-tied slaves we are to public opinion. As a lamb before the shearer, so are we before the pop-

ular party. Four years ago, had Dr. Mowbray made his statement, he would not have subjected his gold pellets to severe malleting, but he would have subjected his golden reputation to the loud sounding knocks of anathematized plugger—the tidal party. Further, he says, “no more two hundred and seventy or three hundred and eighty blows of mallet on a pellet of gold in my practice—believe one hundred blows will greatly injure if not altogether destroy its cohesiveness.” Now, it is my opinion that even fifty strokes on a medium pellet will greatly impair its molecular affection.

Three hundred and eighty! Ye gods! With an automatic alone, will knock in the feathers of the American bird on a gold coin, and leave him shapeless as the man in the moon. We may pound gold till our hair is silvered over, we cannot make the density greater than cast gold. But we can, in less time than it takes to tell it, produce such a molecular effect by our constant, “knocking knocking” as to leave it stiff and rigid. With large sized foil tweezers take up a pellet—I care not the No. from 6 to 240—even a piece of soft plate,—and observe what little force is required to squeeze its sides into perfect contact. After this perfect contact has been made, all further pressure in the same direction is simply to change its form, but not its density. How often on the page of dental literature has this would be fact of importance stared us in the face?

“No filling can be perfectly condensed by hand pressure, etc.” Now I don’t say this enunciation is a lie; I think it’s simply a fungus, attending those hot spurred efforts to float on the wave of the eccentric current—“only that, and nothing more.” So far as the required density is concerned, any gold filling can be amply accomplished by hand pressure. But in very many cases I prefer the auto-mallet, because it is easier on me; and for the same reason, I know good operators, who prefer the steel and lead mallet. My lead mallet has often led to golden results; but now lies down with its laurel crown, and my feelings are, “disturb him not, but let him rest.” Good operators use it, and good operations are performed with it; but why use that which necessitates the presence of a second party when

a little silver dressed automatic mallet will answer in place? When the epidemic of heavy foils and heavy mallets raged I was told by a friend, a gentleman and a scientific operator, that unless I used these articles, my operations could never compete with perfect work. Each year I find myself gravitating nearer the conviction, that he was mistaken. Some times, I am inclined to think there would have been more truth if the opposite had been spoken.

Now I put it to you my respected co-laborers for good, have your observations not been as mine? I have found in the enamel around many beautiful fillings made with the mallet, fractures which, I am pained to say, were the result of malleting. These observations were from my own work, as well, as from that of others. (I, thus, court the good of my soul by free confession.) Nor do I believe this was always done by "over malleting." We all agree that a good filling must necessarily be up close against the walls. If the depth of all cavities proceeded at right angles to the orifice, and the walls of the same were parallel, we might never endanger tooth substance by mallet strokes; but we don't find cavities this way often; and, it is here, I apprehend, where the mischief is. In our laudable efforts to reach the varied concave walls in building up close, the point strikes against the wall and a fracture is the result.

But says one, "you should not let the point touch the tooth wall when it receives the mallet stroke." A reply is echoed from my pen—in many cavities of a complex, concave, posterior decay, you cannot help it. But in like cavities; without the mallet, you can, gently, let the point slide down against the wall till it reaches the gold and then give it a force amply sufficient for perfect union, and at the same time far less concentrated for fracture.

A mason resting his chisel against a nodule of marble, with all his available force, cannot effect it in the least; but a single tap from his mallet makes the calcareous child skip with a song akin to, "don't forget me mother". And it is the same principle that breaks up that once happy union in our own marble walls.

Many teeth have been well filled—have even escaped fracture, but have had their socket membranes so seriously irritated by those thumps and bumps, as never to entirely recover.

It is true, they would herald to the world we are the “elect,” the golden medals about our necks are a guarantee to the high standing in the circle of our peers! Many brilliant encomiums have been pronounced over us, etc., etc.! But, alas! Science speaks; her testimony strips them of their aristocratic robe and proves the blood impure! suppuration at the root! (And just so you will often find it.) I have many fillings in my own teeth some of heavy foil and from heavy mallets and this, together with my observations of, and testimony from others, compels me to enter my protest against this over Vulcan-like pounding of the day.

DENTAL EDUCATION.

BY GEO. H. CUSHING, D. D, S., CHICAGO, ILL.

Read before the Mississippi Valley Dental Society, March 4th, 1875.

It is a very easy thing to criticise methods or systems with the formation of which the critic has had nothing to do, but it is not always so easy to offer remedies for apparent or acknowledged defects which shall prove of practicable application.

Yet thankless and distasteful as the office of critic may be, it must be assumed by any one writing upon the subject of dental education which it is the purpose of this paper briefly to discuss; and a wise and just criticism should tend to advance the interests of the subject under consideration.

This subject has recently engaged and is now engaging the attention of the profession to a greater degree than ever before, since the establishment of dental schools, and a feeling has arisen and is daily growing stronger that the instruction of those seeking to enter the profession is inadequate and unsatisfactory—this feeling finding expression chiefly in censure of the dental colleges.

It will not be attempted, in the brief space allotted to this paper to review the whole field which would have to be traversed in considering fully what, in detail, dental education should be; but reference will be made to some of the evident defects now existing which might easily, and should be, corrected.

The profession at large should correct at once and forever the grave fault of receiving as students persons who have had less than a reasonably good common school education, and who possess less than a reasonable moral character.

They should also refuse to retain as students those who after sufficient evidence prove notably unfitted, by reason of a lack of requisite gifts, for acquiring a respectable position in the profession; and lastly they should receive no students unless they intend to devote such time to their instruction as the students have a right to expect, and as their proper qualification at the hands of their preceptors may require. These faults are very grave and very general, and lie at the foundation of this whole matter. It is too generally the case that dentists who are willing to take students at all, make no inquiry either as to their moral character, or their intellectual acquirements, and too often are only actuated in the matter by the consideration of how remunerative they can make their labor, as servants doing the drudgery of the laboratory, while their so called education consists wholly of what they may learn of the mysteries of rubber and cheap dentures. When these practices are amended, there will be better material furnished to the colleges and in consequence so much better men graduated from them:

Now as to the colleges, what are the most apparent faults with them. First, there are far too many of them. If there were in the place of the ten, now in operation in this country, but two, or at the most three, located at the best points for the

various sections of the country, and the energies of the profession were concentrated upon the three, we should undoubtedly see better results than are now attained.

It is clearly impossible to obtain the best talent and have it devote enough of its time to secure the proper education of young men for the dental profession, where there are so many schools and so few students. Now are we likely to see any improvement in this direction? It is very much to be feared not, so long as human nature remains human nature! Then accepting as inevitable this most unfortunate multiplicity of schools, can anything be done to improve the quality of graduates that they send forth? Let us look at some of the other more apparent defects of the system and perhaps it may appear where improvement is possible. The standard of graduation is too low in our colleges. This is a fact that will hardly be disputed by any, and the system of examination by the professors of the schools is radically wrong. There should be a board of examiners, entirely and absolutely independent of the college and of their faculties, such as the English schools have. Both of these defects could easily, and should, be corrected, and it is hardly possible that the profession will hold the colleges blameless until they see some determined movement to improve these conditions. These changes can easily be made without entailing upon the faculties any greater sacrifices than they now are making, and no excuses or explanations by the authorities of the schools will serve to quiet the demand which is made for, at least the evidence on the part of the colleges of a disposition to advance the standard of dental education. Another great defect in the schools, is the inadequacy of the practical instruction in the operative department. While the principle demand upon the dentist is for operations requiring the greatest dexterity in the use of instruments, and a high degree of manipulative ability which can only come from extended practice, it is very evident that even under the most favorable circumstances, as the colleges are now conducted, graduates must leave their Alma Mater sadly deficient in that practical education which is so essential to qualify them for the

duties of their profession. Just how this defect may be remedied is not perhaps so easy to state, but that it should be, is beyond a doubt.

The above are the most obvious defects in our present system of dental education, and some of them, as has been suggested, can easily be remedied.

There is a ground of complaint against the colleges implying a defect in the system some where, which it is difficult properly to characterize. It is intangible except as to its effects, but it is still held to be in some sense a reproach and to call for reform. It is supposed that institutions of learning, like our dental schools, leave their impress upon the character of their graduates. They do leave their impress, for good or evil, so when we see in a single city, within the three years last past, six persons known to be graduates from three of the leading colleges in the land, and two others claiming to be graduates from some of these same colleges—all fresh from their Alma Mater, with whatever impress they have received from their teachings, and associations with faculty and students newly stamped upon them—when we see these young men coming directly from their schools and at once engaging in the most disreputable practices—some of them going at once into the offices of the most notorious quacks as assistants—others starting upon their own account with all the parade and clap-trap of the mountebank—we are inevitably led to conclude that the *morale* of these institutions is not what it should be. This is no fancy picture, nor exaggerated statement, but a plain recital of fact, susceptible of verification at any time. It may be said that this is an exceptional coincidence. It is doubtless an extreme case, yet the same tendency has been observed to a greater or less degree all over the country.

In the same city where the above occurred, but one known graduate, during the same period, established himself in a reputable manner. No explanation will be offered here of why this is so, but it is urged that it clearly is the duty of the faculties of the various colleges to do their utmost to remove such a stain from the reputation of our educational institutions.

There are other improvements that doubtless are very desirable, but these are imperative—easily made, and once established would pave the way for others.

It doubtless may be urged against their practicability, that the schools would not act harmoniously in this matter. It cannot be said that this is so until the trial is made, and we are bound to believe that all the schools have too much at heart the real welfare of the profession, not to readily fall into any general arrangement that shall secure the improvements demanded. If there are any of the schools that would not agree to co-operate in such a movement—let all those who have the right spirit act independently of them and elevate their standard without being frightened or intimidated by the bug-bear of competition, and the time would soon arrive when all would stand upon the same platform.

Doubtless in the discussion of this subject will be heard the oft-told tale of the sacrifices which professors in our dental schools continually make for the welfare of their students. Now probably no one who has not experimentally demonstrated it in his own experience, has a more full appreciation of the extent of these sacrifices than the writer of this paper, and for all the unselfish philanthropy which has been in part the motive power in the lives of such men—they deserve the fullest meed of praise, and no word in this paper is intended to detract in the slightest degree from their well earned glory; but they should remember that they stand in the foremost rank, and are properly looked up to by the profession at large, not only as conservators of its interests, but as pioneers in reform and advancement and they should not pass by unheeded the reasonable demands of the day and the hour.

It has not been the purpose of this paper to fully discuss this subject, but only to open the discussion with such suggestions as seemed of vital importance and of practicable accomplishment. All that has been here said has been, before, much better said, especially in the report on this subject read before the American Dental Association at Nashville. But it is hoped that the reiteration of what has before been urged may occasion that serious consideration which is due the importance of the sub-

ject. Doubtless your discussions will bring to bear upon the subject the force of matured thought which shall bring out the many points necessarily comprised in its proper consideration, and it is to be hoped that such an impetus will be given to the forward movement, that we shall soon have cause to rejoice in the fruition of our hopes for a higher dental education.

Proceedings of Societies.

DISCUSSIONS BEFORE THE MISSISSIPPI VALLEY DENTAL ASSOCIATION.

WEDNESDAY MORNING, MARCH 3d, 1875.

Dr. H. A. Smith read an essay written by L. G. Noel, of Nashville, (that gentleman being absent.) Subject; "The prevention and treatment of caries upon the proximate surfaces of teeth." After the reading of the paper the subject was announced as open for discussion.

Dr. Keeley said that he approved in the main, of all that had been set forth in the essay. He does not always resort to extracting to relieve a crowded denture, in the case of a young patient; since the expansion of the arch will in time, frequently correct such irregularity. Does not approve of Dr. Arthur's method of anticipating decay by cutting spaces between sound teeth. Sometimes employs the method, where the proximate surfaces are already slightly or even considerably decayed, being particular to thoroughly polish the exposed dentine afterward.

Dr. Hunt expressed his approval of Dr. Keeley's views. Said that he practices cutting away superficial decay to arrest the disease more than he formerly did. Where it is practicable however he advocates contour fillings.

Dr. Rawls asked for an expression from the members as to the expediency of cutting away the proximal surface of the temporary molar as a means of preventing decay of the permanent molars.

Dr. Taft: No invariable rule of practice can be prescribed. Sometimes it is best to cut away to prevent decay or to arrest it after it has occurred; in another case you may find it necessary to extract to accomplish the same object. Again, it may be inexpedient to extract, where by so doing you would only perpetuate an irregularity which might have been corrected by the use of proper appliances.

The liability of the teeth to decay must enter into the consideration. In general I make it rule to extract one or more teeth in cases of irregularity where the indications are that nature will then remedy the defect. Much judgment in this matter, and a nice discrimination are required.

Dr. Morgan: There is a class of teeth which have not been mentioned, which I should remove to gain room. If the six year molars are decayed and there is a good prospect of saving the neighboring teeth by sacrificing them, I frequently do it. First, because it gives a better opportunity for the regular development of the dens-sapientia and offers facilities to the bicuspid to separate a little; and in the second place because, if these teeth were filled instead of extracting them the probability is that it would be necessary to extract them after a few years. And the final result would not be as satisfactory as if they had been extracted in the first place.

Dr. Taft: Do you pursue that course where the teeth are not specially crowded?

Dr. Morgan: Yes, sir. I should remove them where they were merely in contact with their neighbors. If there was a crowded condition, that fact would operate as an additional reason for extracting them.

Dr. Taft: I think you should be governed by the extent

of the decay and the predisposition to decay. We should consider the peculiarities of individual cases. You might do for one patient what you should not do for another where the teeth are in apparently the same condition. Unless there is a marked tendency to decay it is not by any means, in my judgment, always best to extract these teeth. Frequently they can be saved keeping the teeth thoroughly clean especially on the proximate surfaces.

Dr. Watt: In my intercourse with my professional brethren I find that nearly all are agreed that if the fluids of the mouth have an alkaline reaction the danger of decay is not imminent. Some members of the profession in the East are beginning to think that the alkalies induce decay. They act upon the organic portion of the tooth. When decomposition results in the formation of ammonia, caries is more likely to result than if the fluids of the mouth were slightly acid. White decay, such as is often found on proximal surfaces and at the necks of teeth, results from the action of nitric acid. The formation of nitric acid results from the presence in the mouth of ammonia. It is hence important that we should take means to discover whether an alkaline reaction is the result of the presence of ammonia in the mouth. The condition is often found in the case of young patients and indicates that the patient has abstained from the use of acid fruits, etc. Prescribe for him acid fruits to be eaten after dinner, or lemonade, pickels, etc.

Dr. Smith: I presume we all know that a space between teeth renders them less liable to decay, whether we have an acid or an alkaline reaction. There may be a predisposing cause of decay in the pressure of the approximal surfaces of the teeth against each other, thus causing a lowering of vitality of the tooth and resulting in a withdrawal of the earthy constituents, thus weakening the tooth or teeth. This theory is earnestly advocated by Prof. Chase, of St. Louis. It may be the extraction of teeth to relieve this crowded condition, is correct practice.

In answer to Dr. Rawls question I will state that I have frequently, since I read Dr. Arthur's book, separated the deciduous teeth from the six year molars. I do not mean to

offer an unqualified indorsement of Dr. Arthur's method. He bases his theory upon the assumed fact that the dentine has the greater resisting power to decay; do not like to remove the enamel.

Dr. Rawls would hesitate to separate the deciduous tooth from the six year molar for the reason that he thinks the contact of the teeth necessary for the proper development of the jaws of the child. I think we might remove every deciduous tooth without effecting the conformation of the jaws. The lower base of the jaw is a part which has no relation to the alveolar process at all, so far as this question is concerned. The extraction of a deciduous tooth does not necessarily effect a change in the shape of the jaws.

Dr. Rawls: I do not think there can be a perfect development of the jaw unless the teeth are present. The pernicious effects of extracting the temporary teeth may not always be apparent, and perhaps are not often traced to their true cause. As to separating the teeth, I do not approve of cutting away the milk molar, particularly for the reason that the teeth thus separated are left with the cervical walls in contact and irritation is the result. If you make a deeper separation you have not prevented contact of the surface and sometimes you have a tipping forward of a permanent tooth consequent upon this operation. How many young persons of the age of fourteen or fifteen years do we find whose molar teeth antagonize perfectly.

Dr. Canine: There is an anatomical reason why it is impossible for the six year molar to tip forward as a result of cutting away the temporary tooth. The roots of the latter we find in almost every case are larger at the termination of the enamel: they are wider from before backward than the crown. So that the removal of the surfaces of enamel in contact, does not in fact relieve the pressure and support of the teeth unless the cut is made quite deep. It will be found almost invariably that the permanent bicuspid crown presents itself between the roots of the temporary teeth and prevents their being pressed together. It is all important to keep the spaces clean after the separation has been made.

I think we find in the majority of cases that the mesial surfaces of the molars are decayed and in my opinion it might have been prevented by free separation.

Dr. Rawls: The theory based on the anatomical structure of the teeth will not I think, obtain in the majority of cases, because physiological conditions are so frequently unfavorable. I would like to have the gentleman examine carefully and see how frequently the second molar assumes a position considerably below the crown surface of the first molar, as a consequence of this tipping forward.

Dr. Morgan: I think if we will take the trouble to observe in most cases we will find that at six years of age none of the incisors are in contact. There is not only *not* a wedged condition but there is not even contact. At that age there is an enlargement of the front portion of the maxilla causing a separation of the teeth to give room for the eruption of the permanent set.

It has been ascertained that the *enlargement* of the jaw strictly speaking is confined to the portion back of the molar tooth, forward of the six year molar the jaw *elongates*. It will be found by actual measurement that the two temporary molars and canine teeth occupy just about as much space as the two permanent bicuspid and the canine tooth. So the idea of their being wedged apart is incorrect. I only advocated positively the removal of every single dead six year molar up to about fourteen years of age; in order to preserve the contiguous teeth. We see these teeth time and again in the mouths of patients of eight and ten years, in a condition which precludes the possibility of saving them by ordinary means. The sooner that fact is appreciated the better. For the prevention of decay between teeth where I think it is otherwise inevitable, I frequently separate all the teeth. I do the same thing to remove decay where it has already commenced I consider it sound practice to separate these teeth and polish them carefully where there is a predisposition to decay.

Dr. Watt: I will state that while caries is ordinarily due to the action of acids, these acids must be in a nascent condition. In a passive condition they do not operate.

Dr. Berry: Thirty years ago the practice of separating teeth was very common, even in cases where now we would insert fillings. The success of that mode of treatment in cases which I have seen is very apparent. I have seen the teeth of patients in good state of preservation forty years after the operation. There was no evidence of a tendency to decay or disintegration of the dentine; on the contrary it had become hard and dense. The person had always taken good care of the teeth. I have seen another case of twenty-seven year's standing, all the incisors had been freely separated to remove decay, and were in perfect condition. The patient used a brush with but one row of bristles—using it after each meal.

Dr. Richardson: I think nature originally designed that there should be room for the full complement of teeth, at the proper time. I do not consider teeth to be in a crowded condition when they are merely in contact. I think that nature designed that they should be in contact; each tooth serving as a "keystone" to preserve the shape of the arch, and to aid in a proper and symmetrical development of the jaws in their relations to each other. The removal of a tooth under such conditions, may result in serious injury. I should hardly feel justified in extracting any tooth for the mere purpose of preventing decay or for the treatment of decay. If there was mal-arrangement, that I would consider a crowded condition. In that condition it is often advisable to extract.

Dr. Taft: Dr. Rawls' remarks about the tendency of the second molar to tip forward after the removal of the first molar, is worthy of consideration. I have not found in my practice that, as Dr. Morgan has stated, when the first permanent molar has been removed the germ of the second molar would start up immediately and take the place of the first molar. I find oftentimes however that the second molar tips forward until its anterior cusps rest against the posterior surface of the second bicuspid. Sometimes the bicuspid moves back slightly and the second molar moves forward

so that we have apparently the phenomenon which he describes. These cases are exceptions.

Again, I think Dr. Morgan is in error in stating that the enamel on the approximate surfaces of the bicuspid is relatively far less perfect than elsewhere on the crowns. This is a vulnerable point it is true.

I do not believe that one tooth ever presses against another so as to cause decay. Simple contact of the teeth does not necessarily indicate decay.

Dr. Morgan: I am not skilled in the use of the microscope but my observation has led me to believe that there is a defect of organization in the enamel of the posterior surfaces of bicuspid, especially the superior. It is thinner than elsewhere. On the lingual and buccal surfaces you will find it is thick.

Dr. Jas. Taylor: It has been generally assumed by the profession during the past thirty or forty years, that the positions of the six year molars relatively change after their perfect eruption. This theory however has been disproved by Dr. Bell who experimented with reference to the question. He ascertained that the spaces of the permanent teeth, between the anterior molars and the six year molars was 3-20 larger than that occupied by the deciduous teeth, 2-20 of this increase of space was obtained between bicuspid teeth and 1-20 by the diminished size of the bicuspid as compared with the deciduous molars. We all know that the six anterior permanent teeth are larger than the temporary teeth, I think that it will be found upon examination that as dentition progresses and the permanent teeth take their position the deciduous organs do move slightly. I do not think the deciduous teeth are often crowded. We do find however that the permanent teeth as they are erupted, point inward nine times out of ten, and each permanent tooth fills a space 1-3 larger than the space occupied by the deciduous tooth. I think by a process of accretion we have a slight expansion of the arch to accommodate the new set.

As to the anterior molars I think there is a time when

they can not be extracted without affecting injuriously the position of the other teeth. They should be extracted early in life to avoid the trouble of the posterior tooth tipping forward. Then you may expect later, a well developed, perfectly organized dens sapientia to take the place of the poorly organized molar. With reference to the structure of enamel, I do think we find cases where the enamel is imperfect in its structure. Sometimes the defect of organization is due to the constitutional disability. We know that enamel is formed before the tooth is erupted. How then can any change take place in the enamel after it is erupted? The question then occurs is the tooth germ subjected to pressure which prevents the deposition of enamel? I think not. The tooth is embedded in a capsule and the enamel organ is interposed. But, again, as to the extraction of the six year molar, as my friend Dr. Morgan has said, "always extract these teeth when devitalised." I extract them at seven or eight years. I want them taken out before the second molar begins to make its appearance. The sooner the better. If you extirpate the nerve in the tooth and attempt to fill the roots you are almost sure to have trouble owing to the large size of the foramina.

AFTERNOON SESSION.

The third subject was announced for discussion. "Irregularities of the teeth; description of cases; method of treatment."

Dr. Watt said that in correcting an irregularity when it becomes necessary to use rubbers or ligatures to move teeth into position, there should be periods of rest, in order to avoid severe inflammation of the parts, and to favor the adaptation of the investing tissues to the tooth in its changed position. His objection to rubber ligatures is, there is danger of their doing irreparable injury by slipping up under the gum and by their persistent drawing exciting severe periostitis. He uses wedges of wood, cotton or paper.

He can wedge the strongest teeth with these agents. Would not drill holes in the teeth to insert screws for the purpose of attaching ligatures. Uses bands and clasps and

accomplishes the object quite as readily. It is not necessary, if the tooth is moved by slow degrees allowing periods for rest, to hold it in position nearly so long as is usually done. To keep the teeth apart, he sometimes uses a bit of hard substance as a piece of Scotch stone, with a band of rubber so applied as merely to retain it and the teeth in position. Dr. Keely has suggested the use of cotton threads but he does not like them because the tension is unequal, a condition of absolute rest is the great desideratum after the tooth has reached its proper position.

Dr. Osmond said he has drilled holes in the teeth and then passing a thread around them, saturating it with sandrac varnish. He has tried many other methods and finds this the simplest and best.

Dr. Taft related a case which he had seen under treatment at the hands of Dr. Dwinelle. The points of the cuspids were just at the margin of the gums. He expanded the arch and then drew the teeth down to their proper position, with ligatures. He regarded the successful accomplishment of this as remarkable, considering that the teeth were not fully erupted. He saw the casts of the case at several stages of progression. Could not state just how long the treatment was in progress. The operation was a perfect success.

The case was a novelty to him. It showed a remarkable adaption of the parts to movements of the teeth.

Dr. Taft mentioned a case of a lady who had a staple inserted in a tooth for the convenient attachment of a ligature. The tooth decayed so as to allow the staple to drop out. He suggested that where some such appliance must be used the small screws are to be preferred.

Dr. Smith: The case related by Dr. Taft, calls to my mind a case that was presented in my office the other day. The patient was nearly thirteen years old, and the cuspids were just appearing. They were entirely outside of the arch. The superior maxillary was exceedingly small. What was most remarkable, the teeth were in close contact. You would have supposed, from the appearance, that the arch was complete. It is probable that no material improvement could be made

even if the arch were expanded. The question arose whether I would be justified in expanding to the annoyance of the patient, or whether it was not better to extract the cuspids. I consulted a neighboring dentist, and he also advised the removal of the cuspids.

In regard to extracting teeth to correct irregularities, I think it is sometimes advisable. It is often resorted to I think when the operator wishes to save himself trouble.

Dr. Keely: I think you can accomplish the object by removing the first bicuspid.

Dr. Osmond described a case where the cuspids projected from the gum almost at right angles. He extracted them and then dressed off the inner cusp of the bicuspid to give it the semblance of a cuspid. The sensitiveness of the exposed dentine he obtunded by applying the nitrate of silver.

Dr. Keely: I would never remove a cuspid in such a case. Would rather extract the bicuspid, and leave the cuspid to take care of itself. The pressure of the lip will bring the cuspid into position. By extracting the cuspids you mar the expression of the face.

Dr. Canine: I was struck with the remarks Dr. Watt made about the importance of retaining the teeth in a manner to secure absolute rest when you have once moved them into position. I heartily approve of the suggestion. My aim always is to save the patient all unnecessary suffering in correcting an irregularity. I think it unnecessary to subject the patient to severe suffering ordinarily. I usually employ plates to accomplish the object. I allow the points or the plate to extend between the teeth as far as possible. When the plate has expended its force I pinch down those points and direct them against the lingual surfaces of the teeth. This operation I repeat if necessary. In a case like that cited by Dr. Smith, I say extract the first bicuspid invariably, unless the patient is over fifteen or sixteen years old. It might not be best in the case of a patient twenty-five years old or older. I do not call to mind a single case in which the canine tooth failed to assume its proper position after I had extracted the bicuspid. The canine teeth I consider to be the keystone in the arch.

To extract them often causes a permanent disfiguration.

In deciding what teeth to extract in correcting irregularities or in deciding whether or not to extract at all, I am guided by various considerations. I examine the occlusion in the general projection and fulness of the mouth, and other matters which I can not now specify.

Dr. Jay related a case of a boy nine years old. The central incisors were large. The canines occupied the place of the laterals, and were close to the centrals. The bicuspid were in position. The laterals appeared directly behind the centrals. The centrals and cuspids closed over the edges of the lower teeth. The laterals were long and impeded the patient's speech. What course should be pursued?

Dr. Canine: I exhibited an impression of a mouth on which I operated at the Indiana State Association two years ago. The laterals stood apart about one-fourth or one-eighth of an inch. The canines and centrals almost touched. Corrected that irregularity in forty days. She declared she had suffered no pain.

Dr. Smith: I would have the treatment of irregularities made a specialty. The average professional man should have nothing to do with such cases. The public must be taught to appreciate the value of such operations. How many practitioners have the nerve to tell a patient what would be regarded as an adequate compensation for the accomplishment of such results as are expected? [Subject passed.]

THE KENTUCKY STATE DENTAL ASSOCIATION will hold its next annual meeting in the city of Lexington, on Tuesday, June 1st, prox. We hope the profession of Kentucky will be fully represented at that meeting, and as many visiting members from outside the state as can make it convenient will find it pleasant and profitable to be there; and all who go will find a most hearty welcome. A good programme is provided for the meeting.

Correspondence,

EDITOR DENTAL REGISTER.

I am glad to see that the question of the relation which dentistry holds to medicine is being discussed in your columns. I am decidedly of the opinion that the question is one of too much importance to longer remain undetermined. As an intelligent body, we have occupied an equivocal position quite long enough. Let us then give the matter that deliberate consideration which its great importance demands; and having done this in a thorough, careful and impartial manner, let us so fully, and so clearly define our position, that there shall hereafter be no uncertainty about our professional status.

Dr. Allport's proposition to separate the departments of dentistry or at least to drop one branch that is now recognized as legitimate and place it in a separate and independent position has had the effect of opening discussion on the main question at issue, viz: "What relation does dentistry hold to medicine." For that service the Dr. deserves the thanks of the profession.

I have long regarded this question as a pending one, and the current of events has not encouraged me to hope that it was one that would peaceably adjust itself. It so nearly concerns our future, that I think every one will acknowledge the expediency, if not the necessity of dealing with it at an early day.

Our educational system, though somewhat diversified at present, is fast assuming more definite proportions and will at no distant day crystallize into some permanent form, possessing that coherence and uniformity which should always characterize a specific educational system. What the character of that form shall be it is not our province to de-

cide. It is evident that dentistry must either constitute an independent profession, or become a specialty of medicine.

The former implies independent schools, requiring text books, adapted to the system of education which such schools would develop, and which with a few commendable exceptions are as yet unwritten. The latter calls for a medical education in conformity with a system already established by the medical profession, to which must be added a special education in dentistry by means of schools organized for that specific purpose.

In all the specialties of medicine a thorough medical education is the first requisite. The candidate becomes first a physician, and afterwards a specialist. The rule would continue to be imperative, and would apply to dentistry equally with other specialties. So comprehensive a course of study would necessarily imply a longer pupilage than has heretofore been customary with dental students and would tend to diminish the number of candidates.

An improved dental education is a confessed want, and I consider that as a first condition of its attainment, the status of dentistry as a profession, shall we accurately determined. This point once settled our course would be plain and we could all work together for the accomplishment of a common object. Now one part is working for independent colleges, while another favors combined schools, or rather special schools attached to medical colleges.

The general principles of medicine (I use the term in its broadest sense) would be acquired in a medical school and would serve as an excellent basis for a subsequent special course in Dentistry. This I think no one will dispute. But the special course will be absolutely necessary to the proper qualification of the dental practitioner. I do not think this second postulate will be any more questioned than the former. Two collegiate courses will therefore be required.

The chief consideration which at this point forces itself upon our attention is this. Is it practicable, to effect so important a change in our prevalent educational system? The excellence of the results which would follow the enforcement of such a

rule, can not be questioned. By its operation dentistry would, so far as education is concerned, be elevated to a much higher position, than it has hitherto attained.

I am decidedly favorable to an advanced system of education and shall not be critical of the mode provided it is acceptable to the great body of the profession. Any scheme therefore that can be made effective for the improvement of the general qualifications of the dentist will receive my most cordial support. I here distinguish between general and special qualifications. The facilities for obtaining the latter are already sufficient for our present wants and it is to the former that our attention should now be directed.

It would be manifestly unwise to introduce any custom or rule that did not promise to become universal; and, hence, in my estimation, the whole matter turns upon the question of the relative practicability of the methods proposed.

The main object of this communication is to elicit the views of others upon the question under discussion, and I have therefore in this article endeavored to state the question fairly, reserving its consideration more in detail until it shall appear that the profession are ready for "a new departure."

C. W. SPALDING.

Editorial.

TREATMENT OF EXPOSED TOOTH PULP.

This is a subject of great importance to every dentist, and one of vital importance to every person who may be afflicted with such exposure. It is a matter of life and death; in it rests the preservation or loss of the tooth or teeth involved.

Until within a few years the treatment of exposed pulp was very inefficient with the great majority of dental practitioners.

Indeed none were as successful as a large portion of the profession now is, by the use of the present knowledge upon the subject. The principles of proper treatment are now well understood; still, in the minds of some, there seems to be a vagueness of apprehension of these principles that is surprising. This arises, chiefly perhaps, from an indisposition to study principles and to engage in thorough analytical investigation, and a desire to have recipes, formulas and specifics. These are much easier to understand and apply than principles.

We have upon various occasions endeavored to present these principles as definitely and clearly as we could, and quite as often given what we regard as the correct mode of treatment, and the materials and agents best adapted for the purpose.

In the treatment of any deranged or diseased organ or tissue of the body it is desirable and important to understand its structure, function and susceptibilities, also life endowment and resisting and recuperative power; and, in addition to this, a thorough understanding of the phases of disease. When these points are all attained, then treatment with its appropriate agents comes legitimately, intelligently and efficiently. Exposed and diseased pulps of teeth are no more susceptible to a panacea, cure all, or single mode of treatment than any other tissue or structure of the body, and vain has been the search for an agent or method of universal application and efficiency. The great desire with many is to know the particular course to be pursued or the thing to be done and the agent to be used, and, that too often, without any attempt or wish to possess the knowledge of conditions that should modify and govern the particular steps in treatment. In the treatment of exposed tooth pulp, there are some things common to almost all cases. And in the first place it is in every instance necessary to remove every irritant from the tissue so far as possible. The method and facility of accomplishing this will be governed by the character of the irritants, and

the susceptibility of the pulp to irritation. All irritating agents should not only be removed but permanently excluded. This applies to all cases where the pulp has been exposed by decay of the teeth. The materials that are usually offensive are the debris of decaying dentine, the foreign substances that accumulate and undergo decomposition in the cavities of decay, and vitiated exudation from the pulp.

The first two of these may be removed by excavation, and thorough washing with water, and sometimes in addition a mild disinfectant and antiseptic will be required.

All injurious agents must not only be removed, but permanently excluded; for, according to nature's plan, the pulps of the teeth were never to be brought into contact with anything except the walls of their own chambers. Vitiating and offensive exudation will oftentimes proceed from diseased pulps, even after the orifice of exposure has been closed; it will not only act as an irritant while the cavity of decay is open, but after it is closed as well, as is shown by the offensive odor sometimes found in a cavity that has been hermetically sealed, and a living pulp beneath. And in other cases it is found that a thin layer of undecomposed dentine is perforated after the cavity of decay has been filled so as to exclude any foreign substance, such perforation is effected by a vitiated product of an irritated pulp. Such cases can not always be anticipated. But when a pulp is already exposed it is usually amenable to treatment and restoration to such an extent as to perform its normal function. Every one, intelligent in this matter, will recognize at once that there is a very great variety of susceptibility in different cases, and even in the same case at different times and in different conditions. The restoration of an exposed pulp to a healthy condition is the second step in the order of its treatment.

The question, of course here occurs, can this always be done? And what is the proper treatment for such restoration? In answer to the first question, it can not always be done; but in the large majority of cases it can; the proportion will vary in different localities. Success, with even the best treatment, that which is according to the highest present attain-

ments in this direction, will be modified by the resisting and recuperative life force in the organ, and by its condition when treatment is begun, by the nutrient supply it receives through the system; and by the size, form and location of the orifice at which it is exposed; these governing the facility of approach and manipulation.

A pulp in a state of irritation and inflammation, like any other ordinary tissue in similar conditions, has in it and passing through it an excess of blood, and that too, changed from its normal condition, just as in other tissues or organs. The vessels then become subject to the same vicissitudes as elsewhere, and require the same relief. The nerve structure of the pulp is unduly impinged or pressed upon, and in addition fails to receive its proper nourishment and, in many cases, is undoubtedly affected by poisonous matter with which it comes in contact, either that from without, or that elaborated in the structure; and the great outcry, so often experienced, is the result.

The circulation in the structure is to a greater or less extent retarded or arrested. The blood becomes surcharged with waste matter and is deficient in oxygen. Now the demand here is restoration of the circulation to a normal condition, and thereby giving tone and vigor to the relaxed and feeble vessels, and relieving the nerves of their embarrassment. The proper management of the circulation will usually relieve the difficulty. Draw away the excess, this relieves distension and pressure—the active flow brings fresh blood freighted with nutrient material which imparts tone, strength and activity to the vessels; and debris and effete matter will be caught up and eliminated and the entire structure returned to a normal activity.

The best results from an attempt at restoration to a normal circulation in an inflamed pulp will and more easily attained where the organ is freed from all unfavorable influences. Usually after removing the foreign substances from the surface of an exposed pulp, the exposed surface scarcely presents the appearance of living tissue and indeed has become so much impaired that its removal is a necessity, if

the body of the organ is to be preserved and restored to health. This removal may be effected by excision, as is often done. This method was first presented definitely to the profession by Dr. Allport, who clearly demonstrated that a portion of tooth pulp can be removed and the remaining part restored to a healthy condition. This may be done even to the removal of one-half of the pulp. About the only cases in which excision seems to be indicated, are those in which there is protrusion of the pulp through the orifice of exposure.

In the majority of cases another method is preferable, this is by the use of some agent that will dissolve any debris or partially devitalized tissue that is not susceptible of restoration. The use of pepsin in the treatment of exposed pulp was brought to the notice of the profession about four years ago, by Dr. Oakley Cales, of London.

It was simply prepared and used without any clear definition or even theory as to its mode of action, it was only stated that experiment had decided that it was valuable in many cases. It is good and its efficiency consists in its ability to dissolve any debris that may be in contact with the exposed pulp, and devitalized or even partially devitalized or dying pulp tissues; the living active tissue resists its action almost entirely if not altogether. After a paste of pepsin, composed of the liquid and dry pepsin, has been in contact with an exposed pulp for from four to six hours, a solution of the debris will have taken place, the pulp will present a clean surface and natural color. The same result may be produced by the use of diluted hydrochloric and lactic acids mixed with a proper vehicle, phosphate of lime for instance, or indeed any substance of such a character may be used, between which and the acids there would be no injurious action.

Lacto-phosphate of lime, and lactic acid and phosphate of lime have been used for the last year and a half, with very decided success in many cases. The mode of its action, and the work it accomplishes is of the same nature as that performed by the agent referred to above. Though it has been suggested that the phosphate of lime is taken up and appropriated, and aids in the elaboration of secondary dentine. This theory however, so far as we are aware is purely hypo-

thetical. To Dr. J. E. Cravens, of Kansas City, Mo., is due the credit of proving the value of this agent and of introducing it to the profession.

In the great majority of cases the treatment already indicated, together with due attention to systemic conditions will restore the exposed and diseased pulp to that condition in which it may be with safely enclosed. Many methods of covering or capping exposed pulps have been suggested, and practiced. The requirement in all instances is to inclose it as nearly after nature's plan as possible; and in order to do this the material used to cover it should be one that could be readily applied, so as to occupy all the space and yet without making pressure upon the pulp or producing any irritation; a material that will not undergo decomposition or change in this position, and will be sufficiently resistant to admit the cavity of decay to be filled with gold, or any desirable material; it should also not transmit thermal change more readily than dentine. Now these requirements are easily understood; but the substance to answer them completely, is not yet obtained. There are however materials that, in a good degree serve the purpose. The substances hitherto employed are so well known to the profession that it seems unnecessary to mention them here. Oxy-chloride of zinc has been thoroughly tried, but failures occurred so often when it alone was relied upon that it has been almost if not entirely abandoned for this purpose; the free chlorine that is always present when the preparation is of a consistence to be used, generally proves an active and dangerous irritant, frequently resulting in the death of the pulp to which it is applied. Moistening the exposed part with carbolic acid before the application will somewhat lessen the evil. A better method than this, is that suggested by Dr. King a few years ago, and published in REGISTER at the time, which was leaving out the chloride and making a paste of the oxide of zinc and creosote or carbolic acid, and with this fill and cover the orifice of exposure, then remove any excess of creosote with bibulous paper, then over this place the oxy-chloride which serves as a protection to the paste, and forms a solid foundation for the reception of the filling.

The lacto-phosphate of lime in paste form is used by some for filling and covering the orifice of exposure; and with quite as good if not better results than with the oxide of zinc and creosote. From some recent experiments the lacto-phosphate would seem to be preferable. It is highly probable that a material better than either of them will be found ere long, but they are a great way in advance of any thing before used.

EASTERN INDIANA DENTAL ASSOCIATION.

The semi-annual meeting of the Eastern Indiana Dental Association, will be held at Dublin, Indiana, Tuesday and Wednesday, May 4th and 5th, '75.

PROGRAMME OF, SUBJECTS FOR DISCUSSION:

1. Duties of the Dentist.
2. Idiosyncrasies of the patient to be considered, as to failure or success in filling teeth.
3. Systemic conditions, and modes in treatment of pulpless teeth.
4. Sensitive dentine and pain obtunder.
5. Cohesive or non-cohesive gold—should we use one, to the exclusion of the other?
6. Al amalgam—should we use it? If so, when and how?
7. Instruments and appliances, use and relative merit.
8. Mechanical dentistry, its status.
9. Code of Ethics.

Clinics from 8 A. M. to 12 M., Wednesday, May 5th.

Volunteer Essay solicited on any subject to advance the interest of the profession. Every member requested to aid the discussions by essays or thought on the subjects enumerated.

N. B. Dentists not members, and Physicians are respectfully invited to attend our sessions.

[Meet at Dr. Stanley's Office, at 9 A. M., May 4th.]

President J. K. JAMISON, Shelbyville,

ILLINOIS STATE DENTAL SOCIETY.

The eleventh annual meeting will be at Ottawa, May 11th.

ORDER OF BUSINESS.

TUESDAY, MAY 11TH—MORNING SESSION.

1. Call to order, roll-call and reading of minutes.
2. Applications for membership.
3. Reports of Committees.
4. Reports of Officers.
5. Election of members.
6. Miscellaneous business.
7. Adjournment.

AFTERNOON SESSION.

1. Annual Address by the President.
2. Essays and Discussions.

EVENING SESSION.

Essays and Discussions.

WEDNESDAY, MAY 12TH—MORNING SESSION.

This session will be principally or entirely devoted to clinics, to be conducted by Drs. G. H. Cushing, Chicago; W. T. Smith, Peoria; W. DeCrow, Quincy; S. C. Wilson, Bloomington, and others.

AFTERNOON SESSION.

1. Volunteer Essays, on subjects not on programme.
2. Continuation of regular Essays and Discussions.

EVENING SESSION

Essays and Discussions.

THURSDAY, MAY 13TH—MORNING SESSION.

Clinics—Conducted by Drs. W. N. Morrison, St. Louis; W. C. Dyer, Chicago; R. Mathews, Pontiac; T. L. Gilmer, Waverly, and others.

AFTERNOON SESSION.

1. Essays and Discussions until 4 o'clock.
2. Selection of place of next meeting.
3. Election of Officers.
4. Reports of Committees.
5. Miscellaneous and unfinished Business.
6. Adjournment until 7:30 P. M., or *sine die*.

THE
DENTAL REGISTER.

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[No. 6

SALICYLIC ACID.

The dominion of "elegant pharmacy" has been extended; antiseptics and deodorisers may no longer boast of an exclusive privilege to be as disagreeable and abominable as they please; an aristocratic first cousin to carbolic acid has entered into trade, and is rapidly proving to demonstration the superiority of "blue blood." The advent, commercially, of salicylic acid as a substitute for carbolic acid may well be regarded as a great stride for those who cultivate "elegance" as well as utility and efficacy, for the former substance appears to possess a degree of antiseptic power equal, if not superior, to that of the latter; and while carbolic acid possesses a disagreeable smell and other unwelcome properties, salicylic acid appears as a crystalline powder, nearly colorless, possessing a very faint sweet taste, and almost without any injurious action on the health. We are indebted to the Germans for this conquest, whose labors have been summarized and presented

before the Medical Society of the State of New York by Dr. Squibb, in the form of a "Note on Salicylic Acid," which has been printed in advance of the usual "Transactions."

Salicin is the well-known vegetable principle existing in various species of the willow, poplar, and other trees and plants. Salicylic acid is a derivative of Salicin; its properties were elaborately described by Piria, and it was subsequently prepared by Lowig and Weidmann from the flowers of *Spiræa ulmaria*; and later, Procter showed that the oil of the winter-green, *Gaultheria procumbens*, was really salicylate of methyl, in other words, a salicylous ether. Salicylic acid was prepared by Cahours from this salicylous ether. As a chemical curiosity it was studied by Gerhardt, Ettling and others.

The little that was known of the physiological and pathological effects of salicin sufficed at least to draw attention to those of its derivatives, and especially to salicylic acid, which has been the subject of occasional comment in the scientific journals for some years past. That it was peculiarly and powerfully effectual to suspend or entirely prevent fermentation and putrefaction has only quite lately been recognised by the Germans, who soon found that its natural sources, as above alluded to, were quite inadequate to enable the manufacturer to produce it in the quantities and at the price that might soon become almost a necessity. Kolbe, Professor of Chemistry at the University of Leipsic, took the matter up, and recognizing the fact that phenol or carbolic acid might be so split up as to produce, among other substances, salicylic acid, he devised a process for its manufacture which is now practically employed at a chemical works at Dresden.

Phenate of sodium is first prepared by double decomposition of phenol of soda, and well-dried carbonic anhydride is then passed through the dry powder at a temperature of 110 degrees to 250 degrees C. The carbonic anhydride combines directly with the metallic derivative of phenol, and alkaline salts of acids of a higher series are formed; among these salicylate of sodium is dissolved in water and treated with hydrochloric acid, which by double decomposition sets free

salicylic acid in small crystals. These crystals are washed, dissolved in hot water, and by recrystallisation obtained in the form of a crystalline powder of a light brown color. The Germans attempt to bleach the product so obtained, and provide an article at a very high price which is sometimes quite white, but most of that in the market at a more moderate price is of a light cream color with a reddish tinge. Dr. Squibb thinks that the unbleached salicylic acid is, probably, of sufficient purity for nearly all, if not all, the practical purposes to which the acid is applied, while expensive chemical processes have to be employed in order to remove the small amount of coloring matter, which more than doubles the cost of production. Common sense seems to show that the coloring matter present is not of a kind, nor present in sufficient quantity, to interfere with the efficacy of the unbleached product, while the high price required for the more or less bleached product would shut it out from employment for most purposes, whatever might be its powers.

Dr. Squibb describes the bleached or unbleached acid as occurring in minute broken acicular crystals, which give it the appearance of a granular powder, soft and smooth under the pestle or knife, but somewhat rough or resinous when rubbed between the fingers. This powder is odorless and nearly tasteless. It has, however, a sweetish and astringent after-taste, with slight acidity in the fauces, but none in the mouth; and though tasteless it leaves a disposition or inclination to expectorate which continues for some time.

Salicylic acid is very difficultly soluble in cold water, but easily dissolved by hot water, alcohol and ether. An aqueous solution containing from 0.2 to 0.4 per cent. of salicylic acid may be obtained by cooling a hot solution, when the excess crystallises out. The acid is far more soluble in water containing a small portion of neutral salt. In Germany a solution is used for surgical purposes which contains one gramme of the acid dissolved in fifty grammes of water containing three grammes of sodium phosphate. Salicylic acid is decomposed into phenol and carbonic anhydride.

Its compounds with the bases or salts seem difficult to make

but salicylate of zinc, a crystalline salt moderately soluble in water, and salicylate of quinine, amorphous, insoluble in water but soluble in alcohol, have already been prepared in Germany.

Dr. Squibb very properly points out that it is, in all probability, a purely accidental, although a very curious circumstance, that a substance of long and well-established character as an anti-ferment should offer a molecular constitution so well adapted to be broken up into a still more powerful anti-ferment, for there is no relation whatever, either in composition, or chemical or physical properties between carbolic acid and salicylic acid, except in their effects by similar or altogether different reactions. Accordingly it must not be hastily assumed that in salicylic acid we have simply carbolic acid under a new name, but the compound must be experimentally tested, compared, and then judged on its merits. Numerous experiments reveal the fact that salicylic acid is a powerful antiseptic; indeed it is asserted to be far more powerful and effective in smaller quantities than any other antiseptic. Consequently its innocuous character, and the absence of odour and taste which characterise it, make it immeasurably superior to carbolic acid, which possesses qualities sufficient to restrict its application within very narrow limits. Other advantages which salicylic acid is said to possess beyond all other antiseptics are, first, that it may be used in quantities sufficient to be completely effectual for surgical purposes, and yet devoid of any irritating action on the living tissues, nor does it produce inflammation, nor any caustic or corrosive effect in any quantity. Although the very small quantities that are effectual are quite neutral, it is admitted that large quantities may be irritant or painful, but not beyond what may be described as a stimulant. Secondly, it is said to have power over processes of decomposition which are beyond the reach of all other antiseptics or anti-ferments since it entirely suspends the chemical vitality which causes the production of the volatile oils in mustard, and bitter almonds, the effect of diastase, etc. Thirdly, it has no poisonous effect in any reasonable quantity.

Brewer's yeast does not effect a solution of glucose to which one-thousandth part of salicylic acid has been added. Mustard flour, which, when treated with a little tepid water, almost immediately develops a sharp odor of essence of mustard, remains quite inodorous if a small quantity of salicylic acid be added. The action of emulsin, the ferment contained in sweet or bitter almonds or amygdalin contained in bitter almonds only, whereby essence of bitter almonds is produced, is entirely prevented by salicylic acid. Fresh milk mixed with 0.04 per cent of salicylic acid and allowed to stand at a temperature of 80° F. in an open vessel took thirty-six hours longer to curdle than the same quantity similarly exposed in a pure state. The neutral salts of salicylic acid do not, according to Kolbe, produce this effect, but only the free acid. Beer containing one-thousandth part of salicylic acid did not become sour when exposed to the air, neither did it exhibit any trace of that cryptogamic vegetation which appears on the surface of spoiled beer. Eggs which had been plunged in a solution of salicylic acid for one hour remained unaffected for three months. Fresh meat on which the acid had been sprinkled remained sweet for several weeks. It prevents or arrests the souring of worts, washes and beers of the brewers, and the putrefactive changes which are so troublesome to the glue manufacturers. Urine to which some salicylic acid had been added was, on the third day, still clear, and without ammoniacal odor. According to the results obtained by Professor Neugebouer fermentation may be prevented by adding 100 grammes of salicylic acid to 1,000 litres of beer. The same author recommends the use of a very weak solution of salicylic acid to rinse out the wine casks, and thus hinder the formation of mould. Small quantities of salicylic acid would also, in the estimation of Professor Neugebouer, if added to wine, prevent that after fermentation which is the principle cause of muddiness in wines, and perhaps check all the wine diseases produced by the growth of fungi. Professor Kolbe finds that a half a gramme of salicylic acid is sufficient to check the further progress of fermentation produced by the action of 5 grammes of beer yeast on a solu-

tion of 120 grammes of sugar in 1 litre of water. It has been suggested that such facts as these will indicate the quantities of salicylic acid to be used in the manufacture of fruit essences, champagnes, beer for exportation; and by way, perhaps, of reassurance to those who might object to be dosed continuously with a chemical of which we know so little as of salicylic acid, it is stated that professor Kolbe could take without disturbing his digestion or general health from 1 to 1.25 grammes of salicylic acid per diem either in water or spirit. Surely, however, an isolated experiment of this kind is not enough to establish the harmlessness of the substance so as to warrant the recommendation of the substance for general employment in the preparation of articles of food.

Moreover Professor Kolbe proposes to use this substance for the prevention of putrefaction in water stored on board of ships the object to be attained either by dissolving the salicylic acid in the water itself in the maximum proportion of 1 to 20,000, or by covering the bung-holes of the water-casks with cotton impregnated with salicylic acid. Would the salicylic acid be quite harmless if used in the former way? A suggestion which we should feel much less hesitation in adopting personally is that a capital dentrifice may be made by perfuming an alcoholic solution of salicylic acid with oil of wintergreen. Used in small quantities, mixed with lukewarm water, acts as an effectual preserver of the teeth; or an excellent tooth-powder may be prepared with salicylic acid. A "sprinkling-powder" for the feet has also been proposed, which acts without checking the perspiration. It should be composed of salicylic acid, talc, powdered soap, and starch. Besides removing odor, it communicates an agreeable softness to the feet.

The phosphate of sodium, solution of salicylic acid was employed by Professor Thiersch to promote the growth of skin over granulated surfaces. Or salicylic acid used alone or mixed with starch was used upon contused or incised wounds, and in operations, with excellent general results, destroying the fetid odor of cancerous surfaces and pyæmic

lceretions. Again, Dr. Fehling, of the Leipsic Lying-in Hospital, reports its use instead of carbolic acid for disinfecting the hands, sponging per vaginum, for sprinkling puerperal ulcers, etc. For these purposes a solution is employed of from 1 in 300 to 1 in 900, or a mixture with starch-flour in the proportion of 1 to 5.

An emulsion, apparently for internal use, is recommended by Professor Wunderlich, of

						Parts.
Salicylic acid	..	..	..	..	..	1
Sweet almond oil	..	..	..	..	..	20
Gum Arabic	..	..	..	..	..	10
Syrup of almonds	..	..	..	..	..	25
Orange flower water	..	..	..	..	..	45

We can not over-estimate the importance of that branch of experimental inquiry which deals with such questions as the influence of agents like carbolic and salicylic acids on septic and zymotic poisoning. These investigations should be pushed to their farthest limit, even if not one in ten put forward by chemistry repay the labor of investigation, for it is certainly in this direction of research that medicine must look with greatest hope of success to control those abnormal vital processes which so far may be modified but not stopped. The phenols will always retain their importance among this class of agents, surpassing as they do all that have been tried before them. If salicylic acid should prove another step in advance, the gain will be great, more especially as indicating discoveries which may enable us to wield an undreamed-of power against the most frightful and hitherto unconquerable ills of humanity.—*The Chemist and Druggist*.

SALICYLIC ACID.

BY WM. TAFT.

Among the many new remedies and the many new applications of old ones that are being constantly introduced into medicine and dentistry, few bid fair to become more prominent than salicylic acid as an antiseptic and disinfectant. Prof. Kolbe, to whom the credit of having introduced it into practice as an antiseptic belongs, had his attention called to it from the fact that it could be readily prepared from carbolic and carbonic acid, and supposed that like them it would retard or entirely prevent fermenting and putrefactive decompositions. He instituted a series of experiments the results of which confirmed his supposition to a surprising degree. He introduced it into the Lying-in Hospital at Leipsic, where it was used with good success. In an article written under the title of salicylic acid, and for the *Deutsche Vierteljahrsschrift zur Zahnheilkunde*, by Dr. Ostermann of Brunswick reference is made to the experiments of Prof. Kolbe, and says that in consequence of the successful results of the use of salicylic acid in the hospital, he was led to investigate it in its application to dentistry. Dr. Ostermann first communicated the results of his observations at the annual meeting of the Central Society of German Dentists.

The following extract translated from the article alluded to, contains some of Dr. O's. observations concerning the application of salicylic acid to dentistry.

"In cases where the pulps of the teeth are changed through suppuration and gangrene into a foul, disagreeably smelling, gas evolving mass, it is well known that if they are filled with out first restoring them to a healthy condition, periostitis will in all probability result. In such cases I introduce into the nerve canal dry salicylic acid and then make a temporary filling which I allow to remain for several days. In order to make the stopping more secure, I saturate a piece of spunk with an ethereal solution of salicylic acid and with it fill the

pulp chamber. The results in a large number of cases were good. The decaying, offensive nerves in the root canals become fully deodorised and shrink into a mumified detritus. Such detrital matter can neither by evolution of gas or putrid secretions irritate through the apical foramen. I will here remark that it may be difficult to effectively introduce the dry salicylic acid into the root canals. If such be the case we can have recourse with advantage to a concentrated solution of the acid in ether, which will volatilize in a very few moments. This course will be especially indicated in the molar teeth; in the incisor teeth and pulp cavities where cleansing can be conveniently performed it should never be neglected. After washing the canals with the above solution, we saturate a piece of spunk, place in the bottom, and then fill with any material that may be desirable.

In the treatment of suppurating pulps, dry salicylic acid may be employed with advantage. In erosion and in inflamed conditions of the mucous membrane and jaws, I have applied salicylic acid with success. In stomacacea and scorbutic inflammation of the jaws, where the borders and inter-dental papillæ appear degenerated, gangrenous, and are coated with a putrid stringy secretion, I have applied salicylic acid mixed with equal parts of the powdered cassia and cinnamomum with a soft brush. The foul taste accompanying such conditions, also the ill smelling breath soon disappear. It may here be added that in every inflammatory condition caused by roots dead or affected by periostitis, salicylic acid will prove an admirable remedy.

Aside from the application of salicylic acid in special cases, I have employed it as an every day means of purifying the teeth and mouth, with the best results.

For a disinfecting mouth-wash: One part of salicylic acid to three hundred parts of water will be sufficient, or if a stronger solution is required, it may be prepared by adding three parts of phosphate of soda and thirty parts of distilled water to one of salicylic acid. It forms a valuable addition to most tinctures and tooth powders.

THE DENTAL PULP AND PULPLESS TEETH.

BY MILTON H. CHAPPELL, KNIGHTSTOWN, IND.

Read before the Eastern Indiana Dental Association, May 4th, 1875.

In dental practice, the cases of pulp exposures with phase and stage of disease,—pulpless teeth with discolored enamel, periostitis, and alveolar abscess are frequently the source of unexpected disappointment.

The dental pulp exposed by caries and aching gives us the cases the most difficult to treat, owing to our limited ability to properly determine the extent of the disease of the tissues involved of which we may be deceived,—the structure may be slowly passing away by suppuration, or by the constant irritation nature is sending her force to heal the defect. Granules or calcification takes possession of the pulp chamber, and a variety of evils afflict our patient. Some such cases give no trouble or warning of their demise, but they are the exception. Then we have the slight exposures, even the removed of the enamel, exposing the nerve fibrils, causing pain and the dentine appears inflamed, such cases present great vitality of nerve tissue and susceptibility when the pulp-tissue (capillary systemic circulation) is exposed, we may expect a natural remedy—secondary dentine; when abused granules or calcification the repair of such tissues is by adhesive, or health restoring inflammation, necessary for the deposit of dentine. We must respect these pathological conditions in the treatment of pulps or our success is uncertain. with patients in good health, free from climatic or miasmatic derangement, the treatment is simple, apply the dam, cleanse thoroughly, and if there be pain without exposure of the pulp membranes you must judge by the length and severity of the pain the character of the disease, apply palliative agents, if acute or primary inflammation it will subside in a short time, of its own recuperative energy, apply dry oxide zinc, lay a piece

of spongoid in cavity, rest a few moments, if easy, apply a shaving of Hill's Stopping lined with arnica plaster, made by laying the shaving on the handle of a separating file, cut the plaster, the size desired and lay on the shaving place over spirit lamp press together, moisten slightly the plaster and lay over the pulp region as a protection from thermal changes fill over with oxychloride of zinc, it is better in all such cases to not fill with gold at the first sitting, wait several days. Where there is continued pain in cleansing and diagnosing apply a palliative, or rupture the pulp membrane and taking away several drops of blood will be very satisfactory, if there has been any pus cells or granules forming they will pop away by the depletion and healthy blood plasma will supply the need and a speedy return to health. When the hemorrhage and pain have ceased apply glycerine and oxide zinc then the plaster and Hill's Stopping as before mentioned and subsequently filling the same provided the depletion does not carry away the pus cells, or the part nearest the exposure may be in a state of suppuration. Remove the disease by an operation if possible; if there is ever any excuse for the use of escharotics it is in these cases. Apply a solution of creosote and dry oxide zinc, a layer of lint of spongoid to absorb the exudation, fill over with wax or Hills Stopping for one or two days, dress the wound the same, as soon as health is restored, apply the plaster and Hill's Stopping filling with oxy-chloride after several weeks, if all is quiet examine carefully for the life of the tooth; cut out sufficiently and fill permanently.

If the pulp is exposed by accident and all parts healthy dress with glycerine and tannin if continued hemorrhage, otherwise apply the plaster cap, which is free from irritation, and Hill's Stopping etc., as before mentioned. Fill permanently at first sitting if desired to complete—the case will be all right. In patients with colds, anæmia or scorbutic, the treatment of tooth pulp is attended with much uncertainty, unless the treatment is prolonged and manipulation careful. Respecting the idiosyncrasy of the case—if there is any excuse for using escharotics (creosote or carbolic acid) it is in these cases, but I believe it should not be used unless there is sup-

putation. I am convinced by the failures in treating pulps that the greatest number of failures is by this indiscriminate use of creosote and oxy-coloride for healthy simple exposures. Doctor the pulp if healthy, as little as possible. The great Master will, if possible heal the affliction if given a chance by natural means, through the function of the blood. The continued contact of escharotics or carious substance will cause the formation of granules or calcification (of which I have a number of specimens) or disorganization, suppuration, periostitis and finally alveolar abscess. The pulp being so vascular and peculiarly sensitive we must avoid and protect it from such irritating agents.

When my patients are willing to assist me in the proper care of their teeth and I find a pulp so far disorganized that its room is better than its company; I treat it as it deserves, (avoiding the dangerous effects of arsenic, and why do we always use creosote with arsenic in the paste?) Apply carbolic acid, seal up securely and await my time, examine and repeat the application if necessary until you get to the apex of the root, where the life forces of the periosteum lends a helping hand and holds the enemy in check by the narrow gateway but if arsenic is used, bone does not seem any barrier and periostitis too often supervenes.

There are two kinds to be considered, and in the mouths of persons as variously constituted as in the treatment of the pulp, holding the same systemic conditions as my true guide avoiding hastily permanent work, with anemic constitutions and persons with climatic oppression until more favorable state of affairs presents. In cases where health abounds and recent removal of the pulp membranes the treatment is simple. Have thoroughly dry, measure the depth of canal and fill with gold or very dry oxy-chloride if the apex be small to the entire depth, the removal of the membrane from the buccal superior molar roots is puzzling and at times impossible of both canals. My choice is glycerine or tannin, do the best you can in removing, hoping the tannin has withered the remaining portions. Closing the foramen preventing a reservoir for liquids. The palatine root being direct and generally very

large, can and should be treated every time and filled to apex. The lower molars treat as the upper molars trusting on the tannin where you can not do better. In all the other teeth you have free access to clear the canals, avoiding reservoirs and filling to apex of root.

In cases where pulps are dead, and abscesses formed, pus discharging through canal, sometimes abscess through the alveolus, the pus formation and flow. Cleanse by operation through the canal, open with Gage's drills to abscess sac, if no other opening for discharge; but if abscess discharge through the gum, open thoroughly to point of the sac, form a communication through the tooth, using topically sol. carbolic acid, if not yielding readily, adding tr. iodine and glycerine. Closing the canal to apex with Hill's Stopping or oxychloride and treat through the gum, if there is no abscess through the gum, form a piston of Hill's Stopping and force the remedy through to the sac, allow to remain short time, and dress by placing floss silk in canal, when you discover no taint of pus or caries fill temporarily, wait a reasonable time then fill permanently. When we have periostitis, the application of tr. iodine over the gum will give relief, sometimes a cantharidal blister will be necessary, the administration of a mild cathartic or attentive will work wonders in the treatment of pulpless teeth, my choice is Dr. Chase's specific enlarged. Hyg., Sub. Mur. v grs; sugar milk xl grs., thoroughly triturated, one grain doses until relief which in many cases acts like a charm if such a thing could be so considered.

If systemic conditions in the treatment of dental pulps, and pulpless teeth are not recognized, we have an old brooding hen on our hands. The general health, climatic and miasmatic changes, have much to do in treating the same. Since 1866 I kept a correct register of all operations, and for three years I have adopted the present mode, treating pulps and pulpless teeth, noting the exact condition, and treatment, and date of subsequent report; whether any trouble, complete success or failure. I feel justified in continuing this mode for the preservation of "the dental pulps, and pulpless teeth."

June-2

ANATOMY.

BY E. S. HOLMES.

Read before the Michigan Dental Society.

To make a report on a subject as dry and prosy as anatomy without being pedantic, would seem to be difficult, even before a nonprofessional audience, and impossible when the listeners are supposed to be as well or better acquainted with the subject than the speaker. I shall not therefore attempt to make a regular report, but try to give something that will induce others to follow with remarks and facts that will be more to the point and better than anything I can present.

Anatomy may be defined in the general way as "the science of the form and structure of organic bodies, and a knowledge of it is practically acquired by the separation of the parts of a body, so as to show their distinct formation, and their relations with each other." An accurate knowledge of which is indispensable to the curist, the surgeon and to all who are called upon to treat diseases either wholly or in part by manual operations.

According to Prof. Dunglison's Medical Dictionary a dentist is "is one who devotes himself to the study of the diseases of the teeth, and their treatment." Or to give a fuller and more comprehensive definition, I should say a dentist is one who is acquainted with the anatomy, physiology and pathology of the organs of mastication, and devotes himself to the treatment and cure of their diseases, and of the diseases of those parts of the human organism depending upon and produced by their abnormal condition.

Allowing these definitions to be correct we see the absolute necessity of the dentist being a good anatomist. The teeth are very important accessories to the digestive apparatus, the front gate of the citadel of nutrition. The dentist to be worthy of the name must be intimately acquainted not only

with the anatomy of the teeth, but with that of the whole system of which they form so important a part. Anatomy is the foundation stone on which the art of cure is constructed, aided by physiology, pathology and diagnosis. How often it occurs, that a disease is incorrectly diagnosed and treated for months without avail for the want of definite anatomical knowledge. A diseased condition of the whole alimentary canal may be caused in consequence of a primary ailment of the organs of mastication. In such cases, all treatment must be only palliative, which does not remove the producing cause. Again, an intimate knowledge of the nervous system, and particularly the nerves that are immediately connected with the teeth and mouth is absolutely essential to enable the dentist to serve his patients faithfully and well. Pseudo-neuralgia that has baffled the skill of one not so well posted, for months or years, has often been cured by the well educated and judicious dentist in a few minutes, and perhaps by a single application of medicine.

It is also equally important to understand the muscles, their attachments and their line of action. Abscesses with external fistulous openings so far removed from the mouth that their origin or cause would never have been discovered by superficial anatomical knowledge, have been traced by the course of muscles to necrosed roots of teeth and then, of course, easily cured. And so we might speak of the other tissues. But enough has been said to call to our minds the superlative importance of a thorough anatomical knowledge. This is all I hope to do on this occasion. And I hope that all who are tutors will see to it that their students are well posted in anatomy, insist upon it, and instill into their minds the fact that without a thorough knowledge of anatomy, their professional acquirements must necessarily be superficial.

IS DENTISTRY A SPECIALTY OF MEDICINE?

BY JOHN MURRAY, D. D. S., ROCHESTER, PA.

A great deal has been written and said lately about our specialty; and much effort and learning have been put forth to determine the question, "Do we belong to the great family of physicians?" and if so, to settle, if possible, the relations that exist between us. Many seem anxious to know whether we are the offspring or the brotherhood of the medical profession, while others have troubled themselves not a little because that full and hearty recognition has not been awarded to us, as a profession, that they think we deserve at their hands.

The medical profession, since it has reached the full proportions of an enlightened and learned profession, has shown itself slow to recognize specialties. Within the last thirteen years a committee of the American Medical Society presented a report to that body adverse to practicing specialties. I think, as yet, our claims to full recognition as specialists, upon the part of the medical profession, are not well founded, and can not be urged with much force. We were not originally a part of that family, but sprung up independently of them. It is true, educated physicians were among the first to take hold of dentistry, and have taken an important part in developing and giving shape and system to the profession. At first we were without professional education, without colleges, or a dental literature; and many engaged in the practice of dentistry without even an office training, and without the advantage of a common school education. Under these circumstances is it to be wondered at that the medical profession would be slow to recognize us? But why this thirst for recognition as specialists? If every thing were granted that the most anxious are demanding, it would not make us doctors, nor even dentists. If we would be specialists in medicine we must qualify ourselves. Specialists possess the

same medical training that other physicians do; they have their office pupilage, and the curriculum of some respectable medical college to pass through, after which they study their specialty, and *this* makes specialists.

There is a better way for those who intend to apply themselves to the practice of dentistry. I would not discountenance the largest and most thorough training, or the acquisition of any degree of knowledge, providing we have time to acquire it; But I always thought it a waste of time for boys to study Latin, and Girls French, while they were sadly deficient in the useful branches of an English education, and yet could not afford the time to make either available. Latin is good for boys, and French for girls, provided they have time to study these languages in addition to their English studies. It is always best to learn first what we expect to have the greatest use for. Let us study our own profession well, and aim to be scientific dentists, rather than physicians.

The first great mistake is made in our preliminary or office instruction. The mere mechanical manipulations of the office is not enough to learn. Every dental student, before he leaves his preceptor, should read and study anatomy, physiology, materia medica, oral surgery and chemistry. With this preparation he may commence his college course with some kind of prospect of success; but if he enter college, as many do, with but a slight knowledge of these branches, he must leave it with but feeble qualifications to enter the ranks of a learned profession. Preceptors are too often chargeable for the defects in the dental student.

But still the question recurs, Why do we desire medical recognition? In talent, in social position, and in general intelligence, the dental profession will compare favorably with any other class of men. Dentists understand their profession as well as physicians understand theirs, and we understand theirs much better than they understand ours.

The medical profession has a history that is not calculated to inflate it with pride. To a great extent it is empirical in practice. I don't use that word in its offensive sense, but simply mean to say that they depend more on experience

than on science. Medical writers claim that certain remedies will cure certain diseases, but can not tell why. Until a very recent date, almost within the memory of dentistry, the medical profession practiced the most absurd superstitions. Let us trace the history of this profession at whose door so many of our brethern have been knocking until their locks are wet with the dews. Dr. Dunglison and others shall aid us in this review of the last century or two.

This author says, at one time in the history of medical science, the *materia medica* consisted almost wholly of the machinery of magic. Pliny asserts that magic was wholly derived from medicine. The word *Abracadabra*, the name of a Syrian idol, figured on an amulet, and worn round the neck, was supposed to possess the power of curing ague and preventing many diseases, especially when uttered in a certain form, and a certain number of times.

To cure rheumatism, a certain verse in Lamentations would be read with a certain intonation, Cato, the censor, pretended to be able to reduce luxations after the manner of the Etruscans and Pythagorians, by barbarous expressions and by magical songs such as *motas vaeta*, or *haut haut haut ista pista sista domiabo damnatura et luxato*. Homer affirmed of the wound of Ulysses, that bleeding was stopped by a charm, and the notion prevails at this enlightened age in certain parts of Great Britain, and also in this country, not among the physicians, but among the common people. A relic of the doctrine of charms is yet retained in the books and in medical language. *Carminatives*, a class of medicines employed in cases which were attempted to be cured by *carmina* or incantations in verse, or such as operated like *carmina* or verse charms.

It is not much more than a hundred years since the doctrine of curing the scrofula or king's evil as it was called, by the royal touch, was implicitly credited, and not unfrequently practiced. The first English sovereign who touched for this affection was Edward the Confessor, who lived in the middle of the eleventh century. It is said that one of the the very last subjects to this degrading mummery was the illustrious

Dr. Samuel Johnson, who, by the advice of the celebrated physician, Sir John Floyer, was carried to London in 1712, where he was actually touched by Queen Anne, but without any good effect.

Bacon, in his day, believed in charms and amulets. Boyle thought the thigh-bone of an executed criminal a powerful remedy in dysentery. Celsus advises the warm blood of a recently slain gladiator, or a certain part of human or horse flesh for the cure of epilepsy. Alexander, of Tralls, held that the liver of a weasel, freed from bile, was a specific, if taken for three successive days fasting. So, also the skull of an ass, and the ashes of clothes stained with the blood of gladiators. Pliny recommends stones taken from the craws of young swallows, for the cure of epilepsy. Artemon treated epilepsy with dead men's skulls; and Antheus, convulsions with human brains. An artist once, when asked what he mixed with his paints, answered human brains. Brains are good for some things, but they are a poor cure for convulsions.

In the Pharmacopœia of Manheim, a distilled water of the young swallow was an anti-hysterical and anti-epileptic. The oniscus, or wood-louse, in most of the European Pharmacopœias, is a remedy in dropsy and asthma. The dried liver of a mad dog, and that of the wolf, in the Pharmacopœia of Wurtemberg is recommended as anti-hydrophobic. The Egyptian mummy, with the hoof of the stag, were regarded as specifics in epilepsy by the Pharmacopœias of Spain and Wurtemberg.

When we, in addition to all this, take into the account the many schools of medicine, and the many absurd theories taught, we are led to one of two conclusions; either that the science of medicine has greatly improved, or that the dental profession should not go down to the grave in sorrow if not recognized as a specialty of medicine for a few years to come. A disposition to recline is generally indicative of weakness, hence the vine fastens its tendrils to the branches of the sturdy oak for support. Gentlemen, we need no oak to support dentistry. It is self sustaining—self reliant. We

have a profession of our own as desirable and as honorable as any other secular profession. Let it be our aim to dignify it. Let us circulate our dental literature and sustain our dental colleges, and by constant self improvement aspire to the highest attainments within our reach.—*Jour. of Den. Science.*

DENTAL EDUCATION.

BY L. G. NOEL, D. D. S.

At a special meeting of the Odontographic Society, held recently in the hall of the Philadelphia Dental College, a paper of mine was read upon the above subject, in which I advocated a thorough medical education for the dental student. Allusion was made to the war that has been going on between the medical and dental journals, in which the former have denied the claim of the dental profession to the position of a specialty of medicine; and to the unbecoming, begging attitude assumed by the latter. Education in the fundamental principles of medicine, was recommended, not only as the best means of putting a stop to these invidious criticisms of our medical brethren, but as absolutely essential to the faithful discharge of the duties incumbent upon the dental practitioner.

It seems that on that occasion I unwittingly got upon the toes of the editor of the Pennsylvania Dental Journal, calling forth criticism in which he accuses me of unkindness, bigotry, inexperience and lack of judgment. Having published only a synopsis of my paper, in which he does great injustice to its true spirit and intent, he arrays me in these robes, and holds me up to the derisions of his readers. I must in justice to myself say that my allusion to the course

pursued by the journals, had reference more particularly to their contributors than to their editors, but Dr. Welchens takes it all home to himself, and thus a random shot has brought down game the huntsman did not see.

While it is not my desire to be always scribbling, and to keep myself ever before the readers of the dental journals, I owe it to the cause of truth in whose behalf I have endeavored to speak, as well as to myself, to correct the wrong impressions that may be made by Dr. Welchens's remarks. He attributes to me the following sentiment, which, though I have no copy of my paper I am sure I never uttered:

"Graduate in a medical college, and you will have all the preparation you want." Now this leaves the impression upon the reader, that I would recommend attendance upon medical schools as all that is necessary to fit the student for the practice of dentistry, whereas I labored to clear the dental colleges of the obloquy that has been cast upon them, and urged their support upon the profession.

It was, to say the least, unkind of Dr. Welchens, to attack me thus, in my absence, when there were present prominent men, who advocated substantially the same views, foemen worthy of his steel whose doctrines he dared not undertake to refute. But the crowning injustice of all, was to publish a garbled synopsis of my paper, with his criticisms, in his own journal, through which I could scarcely hope to get redress. Dr. Welchens seems to take deep offense at the word "contemptible," which I intended to use in reference to all the whiners for the recognition of the medical profession, but which he fits to the editors of the dental journals, himself in particular.

It would not be hard to show that the position he takes on the education question, is, at least absurd, if not contemptible: and that is what I now propose to do. In an editorial which appeared in the Pennsylvania Dental Journal for January, 1875, he takes the following ground: "The prime and leading element in the controversy seems to be overlooked, and it is our firm conviction that until it is recognized as the main principle and starting point, no definite

conclusion can be reached by the profession upon the subject of dental education. The element to which we refer is, this inordinate desire upon the part of some of our prominent men to pin dentistry to the medical profession the tendency to make the medical profession a basis for dental education, or the dental practice. Almost every writer upon this subject speaks of the dental profession as a specialty of the medical profession, thus introducing a logical contradiction or blunder every time our art is referred to as a profession. If we are a specialty of the medical profession, then, indeed, it is right and proper that we should make that profession a basis upon which to establish all preparation for the responsibilities and practice of dentistry. If we are a specialty of the medical profession, separate colleges, literature and machinery are all wrong, for without the sanction, aid and co-operation of the institutions of learning in the medical profession, we are running into strange channels and usurping the vantage ground of other arts, and the legitimate prerogatives of other sciences. * *

* * We will say in support of the position we have here taken, that there is nothing in the details and practice of dentistry which approximates the practice of medicine so near as to render the one absolutely necessary to the successful prosecution of the other. *The one* is a system having all the machinery, the appliances, education, institutions, literature and principles of practice peculiar to itself and tending to its own legitimate end and purposes. It is old, honored and powerful with its special literature, its peculiar faculty and talent, and is rightfully proud and jealous of the valuable mass of material it has thus gathered up. It takes no cognizance of the dental art. * * * * *

The other has its peculiar province, is a system resting upon a separate basis, and is cognizant of a separate routine, with peculiar methods of practice, special appliances and principles in its operations, its own therapeutics and pharmacopœia, its aesthetics, powers and destinies which belong to itself alone."

Before we proceed to quote more from this *wise counselor*, who thus brings his matured judgment to bear so heavily upon the subject, let us see if all that he has said here is true.

Dentistry is not a specialty of medicine, it has a distinct literature, peculiar methods of practice, peculiar principles, its own therapeutics and pharmacopiæ, etc., etc. This is his position. Now I would ask Dr. Welchens, if a knowledge of anatomy, chemistry and physiology is of any use to the dentist in practice. I do not think that he would deny the utility, or even the necessity of such knowledge to the dentist. Then if he ignores all connection with medicine, and everything that belongs to her, where is he going to get such knowledge? From the special literature of the dental profession of which he speaks? Our profession has given to the world no text books upon these subjects,* and if Dr. Welchens were to undertake to write them, I think he could hardly afford to ignore the facts collated by eminent anatomists, physiologists and chemists of the medical fraternity, who have left their names inscribed in living characters of truth upon almost every page of medical literature.

I challenge the editor of the *Pennsylvania Journal* to produce the separate and peculiar pharmacopiæ and therapeutics of which he speaks. I know that the dental profession have given some valuable discoveries to therapeutics, but the bulk of the remedies we use were discovered, their physiological action ascertained, and their classifications made by physicians. I love dentistry, and would not filch one laurel from her fair young brow; but she must not forget her parentage; her filial respect for her old grand mother must be exacted. She is the child, the legitimate offspring of medicine, and there is no denying her maternity when she bears the likeness of her mother in every lineament and feature.

As well might you hope for the branch of a tree to flourish

*Watt's Chemistry and Handy's Anatomy are both by medical men, though prepared for the dental student. Handy was a professor in a dental college, but never a practicing dentist. Dr. Watt, though a practitioner of dentistry, was for many years a practicing physician.

after it is severed from the trunk, as to expect the science of dentistry to advance and prosper after such a lopping off of all connection with medicine, as Dr. Welchens recommends. The thing is impossible, and therefore absurd.

I do not say, nor have I ever said, that you cannot make a dentist of a student except you send him to a medical college; but I do strongly recommend students to attend upon, and graduate in a medical school, before entering a dental college. I do this because I think the course is too short in dental schools for the acquirement of all the knowledge requisite to fit a man for the practice of dentistry. The two years spent in a medical school, may be devoted to the study of the fundamental principles of medicine, anatomy, physiology, chemistry and materia medica, and in acquiring a knowledge of practical surgery, by attendance upon the surgical clinics. Then upon entering a dental school, the burden which falls heaviest upon a dental student, will have been rolled off, and he is left untrammelled to apply himself to the details of dentistry proper, which will furnish him with quite enough study and practice for two more years. I take this position believing it the one best calculated to advance the profession of dentistry, and that it is the true position for every member of the profession who loves his calling, and is jealous of its progress.

The Doctor's editorial is so full of errors and contradiction, that we have not time, nor can we ask space, in which to notice them all, but there is one or two more, to which we wish to allude. After insisting that dentistry is independent of medicine in every respect, that it "rests upon a separate basis," "has its own therapeutics and pharmacopiæ," etc., he goes on to say: "We do not presume to intimate that these two systems are the off-spring of two different principles, but they now stand, and have for years stood, not only as two different systems, but in actual antagonism in almost every respect." This is a direct admission of facts he has just most laboriously denied, and a flat contradiction of all that precedes it. It is a weak point in the wall of verbiage which he has erected around his false position, which lets

out at last the truth that he is endeavoring to imprison. Does he not know that like must beget like, all through nature? Has he ever known the eggs of a wren to hatch jays? If dentistry is the off-spring of medicine, must it not necessarily rest upon the same literature as a basis? I call upon Dr. Welchens to rise and explain by what means dentistry became purged of her original iniquity, washed, born again, as it were, mounted upon a new pedestal, a separate and distinct science? Then, too, I should like him to explain in what respect the two systems are in actual antagonism, as I am unable in my stupidity to see that point.

Again he says: "The dental profession treats the diseases, and repairs the decay of the human body which comes within its sphere or jurisdiction, in a manner peculiar to itself, and which is the result of a long experience, earnest research, scientific investigation, home talent and genius, and says the medical profession is totally ignorant of all the details of the reparative system."

Will the doctor be a little more explicit? Will he not be good enough to enter a little more into details, singling out special diseases, and show what this peculiar treatment is, as applied by this distinct profession of which he speaks? Did we not learn the circulation of the blood from Harvey? And did we not from this fact gather all the phenomena of inflammation? Is inflammation of the dental tissues not to be treated just as inflammation in any other part of the body? Would not the dental surgeon remove adventitious growths from the lips and gums, just as the general surgeon would remove them from any other part of the body?

Such has been my teaching, but if Dr. Welchens is right, then is my teaching all wrong, as well as that which is being dealt out by the dental colleges whose cause he claims to espouse. Now, one more quotation of language he used before the Odontographic Society in discussing this subject, and I am done.* "We desire, most emphatically, to recognize dentistry as a profession distinct, with colleges, societies and literature peculiar to itself. It is a science of no mean

*Pennsylvania Dental Journal, May, 1875, page 191.

parts or pretensions, and of sufficient power, through this machinery, to make dental scholars of ample capacity and ability to meet all the exigencies which may present themselves. We are for drawing a strict and emphatic dividing line between dentistry and medicine, not even allowing as Prof. McQuillen does, the privilege of any to think otherwise." Now, if this is not bigotry, I don't know what to call it. He actually denies other men the privilege of thinking for themselves.

"Upon what meat hath this our Cæsar fed, that he hath grown so great."

I grant him that there is, in our profession, abundant material of the right sort out of which schools may be made "of ample capacity and of ability to meet all the exigencies which may present themselves;" but in making up the faculties of these schools would he ignore the M. D.; A dental school without an M. D. in all its corps of teachers, would indeed be something new; that indeed would be making a radical change in our system of education. There are in America at this time ten dental colleges, employing seventy-three professors, forty-five of whom are M. D's.—more than one half. Many of these, it must be remembered, are not dentists, but regular practitioners of medicine.

Nearly all of the text books, used in these schools, were written by M. D's. but in most instances we find that their authors were the graduates of medical schools. Of these may be mentioned "Harris' Principles and Practice of Dental Surgery," "Bond's Dental Medicine," Handy's Anatomy," "Garretson's Oral Surgery," Watt's Chemical Essays," etc. The same is true of those who have contributed most largely to our journalistic literature.

In the last number of the Pennsylvania Dental Journal, notice is given of the next annual meeting of the Pennsylvania State Dental Society, at Cresson Springs, in July, in which Dr. Welchens is announced to read an essay upon the subject of "Dental Education." We advise all whose minds have been anxious and agitated over this prolonged problem to go and have them forever put to rest, for the Doctor proposes to

bring his experience, matured judgment, and wise counsel to bear upon the subject. Go, anxious one, he will not even ask you to think for yourself, for this he claims as his own peculiar prerogative, all the burden of care he will roll from your mind, and assume himself.

Wondrous magnanimity.

Correspondence,

BASEL, SWITZ., Feb. 11, 1875.

Dear Doctor Smith:

As it is nearly time for the old Mississippi Valley Association to meet, perhaps a word from an old member now in an old country would not be taken amiss. After about three years of trial, of experience of dentistry in a foreign land, perhaps my opinions might be interesting about a life of a dentist here and the practice (of American Dentistry) abroad. We receive letters often from young dentists asking about the prospects, older and well established dentists too, often apply. They get a little discontented at home, get tired of everlasting routine of dental practice at home, find that money don't flow in fast enough and being discontented they remember the flattering accounts they have heard of Dr. Tom Dick or Harry who went to Europe and made an immense fortune. Now down in their hearts they feel that Dr. Tom or Dr. Dick whom they know are not or were not quite as good dentists as they themselves are and yet to think of these Doctors going to Europe, representing American Dentistry and making a fortune. So the discontented fellow at home sighs for Europe or South America or China. These

reports are very much like the accounts of great nuggets of gold being found in California and a man made rich in a day. They grow on a man, they haunt him at night, they float before his eyes as he labors at home, they come between him and his filling of gold. His mind becomes displeased and if he has great courage he gives up his home and hies for Europe. Ho! when he arrives if he has burnt his ships behind him, he stays with a great disappointment, a great sense of having been sold, hovering over him, and one by one the dreams, the prospects, once so enticing mock at him and he cries "it is all a delusion and a snare" 1st He is cut off from the agreeable social life of America and remains a pilgrim and a stranger, a foreigner with no place, no part in the social life abroad. He is no longer the "rich American Traveler" but a dentist. 2d. He loses all the professional stimulus so abundant in America his dental societies his dental friends. 3d. He is no longer practically a citizen and he feels the loss of the privileges he did not value at home. 4th. He finds dental work, a dental office about the same as at home. Teeth are just as bad no matter what the theory at home is, as in America; and he must fight against prejudices, and while he is educating his patients up to his standard, must also modify his practice to meet a different atmosphere, a different mind among his patients, 5th, Now for the fortune. Ah, you say, what if a man loses all these foregoing things and gains in a few years fortune's sweet smile? Yes, but suppose he sells his soul and then don't get the fortune. What a miserable chap he will be. Fortunes in dentistry can be acquired here just as they can at home. If a man has a comfortable practice, collects his fees and spends nothing he may be rich after a while at home or abroad, but to live moderately and like a professional gentleman at home or abroad costs money and I have not seen an instance of the cheapness of Europe, that has not its contrapart at home. That's so. Let no man who spends from \$3000 to \$4000 dollars at home for living, expect to spend less in Europe. Let no man who by economy spends but \$1200 or \$1500 at home expect to do the same for

one franc less in Europe. If you will live on ch ese and bread and beer at home you can be rich, but if you educate your children, clothe yourself and family well, live like a gentleman, as most dentists do or try to, don't expect to do it on one cent less in Europe than in America. I have not seen the wealthy dentists of Europe, and I have met a good many dentists. I have, however, seen several good fellows laboring away for a living and privately swearing at themselves for ever having been such fools as to leave dear old America.

Let me tell how to get a practice in Europe, one way is to go and open an office and sit down in it as at home and wait for business. It will come with patience and intelligence applied in the waiting, as surely as it will in America. The other way is to buy at the fanciest kind of figures "a dental practice" and this is the best way, for after you have made payments on your practice you must stick, you can't afford to be discouraged and no matter if you find you have bought what the Ohio boys vulgarly call "pig in a poke," you've paid some on the pig and you hope the pig will come to you. So you stick and sticking is one of the elements of success.

Before a practice is bought it is magnifique, glorious; after it is yours, it's a struggle and a fight for life as at home until you have made it yours, by the ordinary and usual ways of making a reputation and proving yourself a success, which could be as easily done at home. These are unfortunately facts. The theories have been laid on the shelf. Are there no bright sides to European practice. Oh! certainly. The people are generally polite and agreeable as patients, and follow your advice better than American patients. They pay their bills, but can not appreciate the high prices which certain works of art must command. They do not boast as some do at home. "Ah, I regard my dentist as a genius. I've got \$500, \$700 or \$1000 worth of his work in my mouth," etc., etc. 2d. We have excellent servants and housekeeping is easier than in America. 3d. We have the ever present hope of going home, and this last I think may be said to be the

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brightest side of European practice. Come over, brothers, and try for yourselves. God bless the Mississippi Dental Association and you and my dear old friends.

Yours as ever, C. M. WRIGHT.

DR. J. TAFT, EDITOR DENTAL REGISTER.

Dear Sir:—My attention has been directed to a medicinal agent, which, after a very brief trial, gives results so satisfactory that I feel like communicating the suggestion to you, as it came to me, except that I will not furnish you the medicine ready for use, as my friend Dr. Blount did for me. The following letter speaks for itself:

"Dear Sir:—I have intended to write to you for some time, in regard to a new remedy that I have been using with much success and satisfaction, a substitute for carbolic acid, viz: "Salicylic acid." In my opinion (derived from a few weeks' experience) it is a much better antiseptic than carbolic acid or creosote, and is far from the objections attached to these medicines, I have been more successful in treating alveolar abscess, and other diseases of the mouth, than with any other remedy.

When used in simple solution take one part of the acid to three hundred parts of water. If a stronger solution is desired, take one part of the acid and three parts of phosphate of sodium to fifty parts of tepid water. Its advantages over all antiseptics are, that it is much more effective in smaller quantities, and in all quantities necessary for complete effectiveness entirely devoid of irritant action upon the living tissues. It is neither caustic nor corrosive in any quantity, and never produces inflammation, and has no poisonous effect in any reasonable quantity. It is said to prevent the processes of decomposition, which are beyond the reach of all other antiseptics.

I have only so far used the simple solution, one part acid to three hundred parts water which has been so effective that I had no desire to try the stronger solution.

In my office it has taken the place of phenol sodique for the reason that it accomplishes the same end, and is so much pleasanter, being free from taste or smell. I send you a little of the medicine, the simple solution, to try. I would send you more but have so little, this will do however to try, and by the time it is used up we can get a fresh supply. Write me soon.

Respectfully,

A. A. BLOUNT."

P. S. I do not know but it would be better to use the stronger solution in treating abscess of long standing."

Hoping you will help to investigate the subject,

I am yours,

GEO. WATT.

Proceedings of Societies.

PROCEEDINGS OF THE MISSISSIPPI VALLEY DENTAL ASSOCIATION.

WEDNESDAY EVENING, MARCH 3d, 1875.

An essay by Dr. Cushing on "Dental Education" was read by Dr. Smith.

After the reading, Dr. Watt spoke as follows: I wish to speak exactly as if the author of that paper were present. The general statement that the colleges are too lax in their examinations, may be true, but if it is true with reference to,

the Ohio Dental College, that institution has certainly degenerated since I left its faculty. A few years ago its examinations were the most rigid and the per cents the highest of any educational institution in America. The last time that I assisted in conducting an examination for the degree of D. D. S., the written examination occupied thirty-two hours. No student had opportunity to consult with his neighbor, his text books, or note books. The examinations were conducted in the presence of the member or members of the faculty presiding over the department of study in which they were made. There was also an oral examination of an hour in addition to this. The rule then was that in case a student's average per cent in any one department fell below eighty, he was rejected. A year or two ago, I published as a curiosity, in the "REGISTER," the questions that had been answered in writing by candidates for graduation. Not one dentist in ten to whom I talked on the subject, believed that students answered eighty per cent of such questions. Now I want an exception made, (if the Ohio Dental College has not fallen from grace,) in favor of it.

The "Dep't of the Ohio," in examining surgeons, applicants for positions in the army, were notorious all over the U. S. for the rigidity of their examination and that is the reason why nearly half the positions of responsibility in the medical department of the army were filled from Ohio, before the war closed. The written examination was six hours long and the oral examination forty minutes.

I have never been present at the examinations, of other dental colleges. But what things I have stated with reference to this dental college are facts which have gone into history.

A list of questions in anatomy was shown to a professor in one of our medical schools. He said "Do you expect students to answer those questions?" I said, "Certainly." He expressed much surprise. Yet there was not a student whose average was as low as eighty per cent, and not a student had the slightest intimation of the questions which would be asked. For my own part when I conducted the last exam-

ination I did not know myself beforehand what questions I should ask but selected them after I had made my appearance before the class.

Dr. Taft: Many can criticise and find fault and defects who could not remove those evils if they were allowed the opportunity.

Dr. Cushing speaks of the plan of appointing a board of examiners to be composed of men who are not connected with the colleges. I do not think that there exists in any of the medical schools or literary institutions of our country such a body appointed for such a purpose. It might however be well. There is no precedent to my knowledge. Why should he make this demand so imperiously, and criticise so severely for the non-observance of that which is not a custom?

There would be some advantages in the adoption of such an expedient which I can readily see. The members of the board might be expected to work with uniformity in their examinations. They would be impartial, unprejudiced, and would administer justice to all applicants for degrees.

The idea is advanced that all who go out from these institutions ought to be honest men, upright men, thoroughly prepared and as near perfection as moral training can make them. The faculty are held responsible for the very dispositions of the candidates.

If a graduate of the college conducts himself in a manner unbecoming his profession, the stigma and the odium are laid upon the faculty. Is there any justice in this?

The graduates of the medical schools do not invariably reflect honor on their teachers and their training. The same may be said of the law students. Are the colleges to be held responsible for the short-coming of their graduates?

The gentleman who wrote that essay, is I believe a member of this college association,

I do not know that this college is any better than any other college, but if it is not, it is worthy of notice that its management and guidance are in the hands of a large number of the best men in the west. They are responsible.

Dr. Cushing has done something, yes much for dental ed-

ucation, he has been writing and giving his influence in that direction. But if he had met with this association and here expressed his views and suggested improvements and aided in making them, and bringing about a desirable state of things, it seems to me it would have been quite as consistent as to stand at a distance and make these criticisms.

In the main I agree with him in the positions he has taken.

The members of the profession do hold us personally responsible for the improvement and elevation of the standard of professional education.

Dr. Watt: This institution had for a number of years, a board of examiners elected by the members of the association which had equal power with the faculty. I remember two instances where the faculty voted almost unanimously against giving degrees, but their decision was overruled by the board.

Dr. Berry: I think the author of the paper is about right. In England the medical student does not receive his degree from his teachers. It ought not to be permitted in America. I think he is right in what he says about the qualifications of the student. Too often the dentist receives a student into his office without any consideration of the question of his fitness for the practice of the profession of dentistry. He wants him as a menial.

If the student is not naturally acute enough to discover his preceptor's motive, so much the better pleased is the latter.

This may serve to account for the indifferent capacity of some of the matriculants of our colleges.

Dr. Osmond: I indorse that paper. The idea of having a board of examiners is good. It would have the effect of enforcing thoroughness of preparation.

Dr. Keely: I approve of his idea of concentration. There are too many colleges.

Dr. Smith: One point which Dr. Cushing makes, strikes me as particularly true of the graduates of dental colleges of the present day. Far too many show a willingness to engage in the offices of those whose practices are directly opposed to the teachings of their alma mater. From the statements of

the author it would seem that comparatively few at first sight established themselves in a legitimate way and are content to wait patiently for the business which is almost sure to come. Frequently in our cities, graduates call upon us for advice, saying they can get employment in Dr. A or B's office. He is not regarded as a reputable practitioner. What would you advise us to do? In some instances, thinking they they might do good in the capacity of missionaries, I have advised the acceptance of such situations. Usually it has been a mistake, since the result has been a thorough demoralization of the young men. It has been a query to me why so many graduates are seeking these situations. Why have they not the nerve to go out and establish themselves independently of others. It is an unfortunate characteristic of our vocation, that when a dentist is established in a legitimate practice, it is difficult for him to duplicate himself so to speak and introduce and make business for another. His individuality is so intimately associated with his business or success in practice, that the only refuge it would seem for the graduate who must be put to work by another, is in establishments where dentistry is pursued largely as a manufacturing business.

Dr. Morgan: No subject can come before this association, in which as an association and profession, we have so deep an interest as in the subject of dental education. It is so from every standpoint we may take.

Students get a wrong impression from the time they enter the office. The preceptor who is in active practice has but little leisure away from his chair, to devote to the oversight of the student's studies, and the latter seeing him so occupied with the manipulative part of his duties, comes to the conclusion that a practical knowledge of details in the making of an artificial denture or the filling of a tooth, constitutes the sum total of the knowledge required to make one an accomplished dentist. Thus he comes to under rate the value of such studies as anatomy, physiology and chemistry. As a rule I would prefer that the student should enter college without the preliminary training of a preceptor.

The present organization of our schools is such that young

men present themselves at the end of the second course of lectures with an expectation of securing a diploma beyond peradventure. I am inclined to think that we might adopt with advantage the university plan of holding two yearly examinations. Let it be understood that no man can graduate on any terms until he has passed his examination.

Dr. Taft: There are however some noble exceptions.

I know that the majority of those who assume to instruct students, are either not competent to the undertaking, or they neglect their duty. We all need reformation in this respect. Some can not impart to others what they themselves know. It requires a peculiar faculty to teach successfully.

Some of the best students of our colleges have never had a preliminary pupilage. One effect of an office training, as it is ordinarily conducted, is to lead the student to under rate the value of anatomy, physiology and other studies in the college course. And further than this, it frequently happens that much is learned in the office which must afterward be unlearned.

The men in the profession, who are best qualified to instruct, will not, in many cases, take students. This is unfortunate; a change in this respect is very desirable.

A few years ago this institution, (Ohio Dental College) made a rule to the effect that a good English education should be required of those who would enter its classes. This matter gave rise to some discussion among the members of the faculty. They thought that it might operate to reduce the size of the classes. It was stricken out for that reason. I am happy to say that it has been replaced. No doubt it did operate to keep some away. I would not hesitate a moment because of the effect such an argument might have. Let us encourage young men of good natural ability and proper preparation to enter our colleges as students, and discourage others. It is far more satisfactory to teach a few who are prepared to receive instruction than a large number, most of whom are unable to understand, appreciate or value the efforts that may be made in their behalf.

We should hesitate long, before imitating the example of

some of the medical colleges in this country. They make no requirements in respect to preparatory education of any kind. A young man who could not write his name, nor master the first reader in the primary school series, can enter any medical college in the country as a student, so far as I am aware, without a question. Our dental colleges are nearly at the same low level in this respect; a course of this kind is necessarily degrading.

Many of the medical colleges have reduced their fees to a mere nominal sum, thus holding out every inducement to incompetent and worthless men to enter their classes. None of our dental colleges have condescended to such a special bidding for students.

Let our aim be to discourage those whom we believe to be lacking in natural aptitude for the acquirement of the information and knowledge necessary to qualify a man for the successful performance of his responsible duties.

Dr. Rehwinkel said that he believed a pupilage in a dentist's office might be dispensed with in many cases. Too many students are from the ranks of those who have failed in other businesses. They enter an office with the view of acquiring in the shortest possible time, a sufficient knowledge of manipulations to enable them to get to practicing.

He said with regard to the feeling expressed by some that the dental profession ought to receive more fully than it does, the recognition as a specialty of medicine; that he did not sympathize with that feeling. Dentists must enter the door of the medical profession before they can expect its members to fraternize with them as their equals in standing. Thinks there is no occasion for asserting such a claim. Dentistry as a science is able to stand on its own merits. (Subject passed.)

Editorial.

SALICYLIC ACID.

This agent as a disinfectant and antiseptic is receiving considerable attention; and from the experience of those who have been testing it, it possesses a high degree of merit, and for certain purposes it would seem must supersede every thing else that has hitherto been used.

Those, both dentists and surgeons, who have been using it, speak in the highest terms of it. We are beginning to use it, and shall speak of it more fully when we experimentally know more about it. From the evidence which is contained in this number of the REGISTER, we can hardly entertain a doubt of its great value. We ask a careful reading of the articles on the subject.

DENTAL EDUCATION.

By private communication we learn that an appropriation has been made to establish a dental department in Michigan University. This is a great step for the dental profession in Michigan, one which they will doubtless appreciate and foster. There is a large and flourishing medical college in connection with this Institution, and we see no reason why a dental college may not flourish as well.

This Institution is large, well established and largely endowed, and well prepared for carrying out any educational scheme it may set on foot. It is free from the embarrassments and unfavorable influences of various kinds, that are usually at-

tached to smaller and special enterprises. Then a high standard can be established, which it seems almost impossible to do in most of the existing dental colleges. It will make no competition with any other colleges, but will simply take its position and maintain it.

If it does its work better than others have done, it will be a matter of gratification not only for the good it will do, but it will serve as a stimulus to others.

TENNESSEE DENTAL ASSOCIATION.

The Ninth Annual Meeting of this Association will be held in the Senate Chamber of the Capitol, at Nashville, Commencing Wednesday, June 23, 1875, at 10 o'clock, A. M.

SUBJECTS FOR DISCUSSION.

Extraction of Teeth. Paper by Dr. S. P. Cutler, of Memphis.

Dentistry in Tennessee. Paper by Dr. W. H. Morgan, of Nashville.

Operative Dentistry. Paper by J. C. Ross, of Nashville.

Treatment of Exposed Pulp. Paper by Dr. E. S. Chisholm, of Tuscaloosa, Ala.

Treatment of Dead Teeth. Paper by R. R. Freeman, of Nashville.

Finishing Fillings. Paper by Dr. W. L. Dismukes, of Nashville.

Filling Teeth. Paper by Dr. R. Russell, of Nashville.

Mechanical Dentistry. Paper by Dr. J. H. Webber, of Springfield.

Mechanical Dentistry. Paper by Dr. D. C. Chisholm, of Franklin College.

Dental Education. Paper by Dr. S. J. Cobb, of Nashville.

Courtesy between Dentists. Paper by Dr. W. C. Shepard, of Columbia.

Voluntary Essay. By H. E. Beach, of Clarkesville.

E. S. Chisholm, Pres.

J. S. King, Sec.

DENTAL SOCIETY OF THE STATE OF NEW YORK.

The Seventh Annual Meeting of this Society will be held at the Capitol, Albany, commencing Wednesday, June 30th, next, at 10 o'clock, A. M., and continue in session three days.

The Essayists for the meeting are:

C. A. Marvin, Cohesive Gold and Leaky Fillings.

O. A. Jarvis, Dental Nutrition.

Frank Abbott, Indigestion—Its causes and effects.

Frank French, Theory and Practice.

S. B. Palmer, Success or failure in Dental Operations, Chemically considered.

S. A. Freeman, To be announced.

C. P. Fitch, To be announced.

N. W. Kingsley, To be announced.

W. H. Waite, Dentistry in England.

All members reading volunteer papers, are requested to send the subject of their essay to Dr. O. E. Hill, 160 Clinton Street, Brooklyn, who is chairman of the Business Committee.

The Essays read at the meeting will constitute the regular subjects for discussions.

It is suggested that the members and delegates come with minds well stored with "Incidents of Office Practice," such as involve points of interest, that this department of the exercises, and the discussion of the essays, may be particularly interesting and instructive.

Any member wishing to exhibit any instrument or appliances, must present them first to the Business Committee,

and, if possible, before the commencement of the first day's session.

The Secretaries of the District Societies are requested to forward their reports in time for the Secretary of the State Society to make up his report.

The State Censors will convene at the Capitol, Albany, on Tuesday, June 29th, to examine candidates.

Members are requested to stay at the Delavan House, as special accommodations for our comfort have been made with the Proprietors by the Committee of Arrangements.

The meeting promises to be particularly interesting and instructive.

W. C. BARRETT,
President.

CHARLES BARNES,
Secretary.

NORTHERN OHIO DENTAL ASSOCIATION.

The sixteenth annual meeting of the Northern Ohio Dental Association will be held at Put-in Bay Island, commencing on Tuesday, June 8th, 1875, at 10 o'clock, A. M. Session will continue two days, and a full attendance is desired. Members of the profession are cordially invited to be present.

E. J. WAYE, President.

C. BUFFETT, Corresponding Secretary.

ORDER OF BUSINESS.

Reading of Minutes of last Annual Meeting, Reports of Officers and Committees, reading of Essays and Discussions, Miscellaneous Business, Election of Officers—11 A. M. 2d day.

SUBJECTS FOR DISCUSSION.

Dental Caries—its Causes, What shall we do with Amalgam? Celluloid as a base for Artificial Teeth, Dental Education, Professional Etiquette, Miscellaneous.

BIOGRAPHY.

A Biographical sketch of Dr. T. B. Hamlin, of Nashville, Tennessee.

Dr. T. B. Hamlin was born June 24th, 1810, at Red Hook or Hamblin's Landing, on the Hudson River, Dutchess Co., N. Y. A few months after his birth, his father moved to Windom, west of the Catskill Mountains where he died, leaving a family consisting of his wife and two sons in destitute circumstances. At the age of sixteen his mother and brother died, leaving him quite alone in the world. To be thus thrown upon his own resources so early in life, without money or education was indeed a great misfortune to the subject of this sketch; but he wisely and promptly bound himself for three years to a silver smith and watch repairer.

During this time he conducted himself so well that his employer sent him to school for six months, and he also received in the latter part of his apprenticeship, some little dental instruction from a physician who was practicing medicine and dentistry together in the little village in which he lived. At the age of nineteen young Hamlin sought and obtained employment in one of the largest jewelry and watch making establishments in the city of Albany, N. Y. His industry and proficiency soon led to his promotion to the responsible position of foreman of the watch making department. In his special efforts to discharge the duties of this important position, he injured his health to such an extent that he was compelled to give up his lucrative and desirable situation and travel for his health. After traveling and resting from business for some time, his health improved and he was induced to return to Albany and secure his former position. His close confinement, however, soon told upon him and he was forced by a renewal of his disease to resign his situation, finally. From Albany he removed to Lee, Mass., where he opened a jewelry store. Shortly after and at the age of 22 years he married Miss Mary Phinney, a daughter of Auscher Phinney, a highly respectable citizen of the town

of Lee. During Hamlin's stay in Lee he was attacked with rheumatism, and this in connection with his dyspepsia caused him to look to the sunny South for relief. In his travels south he went to New Orleans, where he spent one winter, deriving great benefit to his health from the change of climate. While in New Orleans he invented an instrument or tool known as the centering and pivoting tool, now in use among all watch makers and repairers. This little instrument has proved to be a very valuable invention, and if properly managed by the inventor, it might have resulted in great pecuniary profit to him. From New Orleans Hamlin moved to Wytheville, Va., where in 1835 he commenced the practice of dentistry, having studied the profession as opportunity offered ever since he received his first instructions at Windom. Soon after he commenced the practice, he joined the American Society of Dental Surgeons, and ever after was a warm advocate of dental associations, and in 1840 he received an honorary diploma from the Baltimore Dental College, a graceful acknowledgment on the part of that institution of his worth and professional excellence.

After ten years' practice in Wytheville and vicinity he removed to Tuscumbia, Alabama, where he practiced his profession two years.

In 1847 he moved to Nashville, Tenn., where he bought out Dr. Vancamp, paying him \$6,000 for a three story brick building on Cherry Street, built expressly for a Dental office. He immediately commenced the practice at Nashville, and for 12 or 15 years did a large and lucrative business, profitable alike to himself and his patrons—to his patrons from the fact that he served them each in an honest, faithful and skillful manner so as to give them full value for every dollar they paid to him.

While Dr. Hamlin was not as extensively known in his profession as some others no one stood higher among those who knew him well, and no one knew him well, professionally or otherwise, who did not honor and respect him. Soon after he located in Nashville, he wrote and published a little book

called "Importance and Care of the Teeth," and shortly after he published a small work called "Quackery Unmasked." These little unpretentious publications contained many valuable facts of much interest to the public as well as the profession, and we dare say much good was done by their general distribution. During his practice in Nashville he did a great deal in the way of interesting the people in the preservation of their teeth.

From the time he commenced the practice of dentistry, he labored with an eye single to the elevation of the dental profession, believing that to be the true way of elevating himself. The fact that he lived up to this high idea of duty resulted in his great success, in his rising from obscurity to a very high and honorable position in his profession, and also in the accumulation of a very handsome property, the mass of which was made in Nashville during the last fifteen years of his practice.

In 1861, owing to ill health he closed his professional career and after traveling four or five years through a portion of the United States and Canada and regaining his strength to some extent he returned to Nashville and purchased a farm some ten miles north of the city.

He immediately engaged with enthusiasm in the bee culture and nursery business. He soon became an accepted authority on the subject of bees, their habits, the best methods of treating them, etc. Having been more or less interested in this little creature many years before giving up his profession. He wrote a very interesting and instructive work on that subject, and received many premiums, medals and diplomas as testimonials of his accurate knowledge of bee culture. At the time of his death he owned one of the largest apiaries of the South.

Dr. Hamlin continued zealously to follow this new pursuit up to the time of his death, which was on the 24th of May 1874, in the 64th year of his age.

S. J. COBB,

Chairman of Com. on Minutes, Tenn. Dental Association.

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ALTERNATION A LAW OF VITAL ACTION.

BY L. C. INGERSOLL, KEOKUK, IOWA.

*Read before the Illinois State Dental Society, May 12th, and
Iowa State Dental Society, May 19th, 1875.*

Vitality is that mysterious something that distinguishes organic from inorganic bodies. We call it vitality, vital force, vital element, vital principle, the principle of animation, the living principle, life. We call it energizing force, a power.—Whether we define it by one or by many words, neither one nor all are adequate to bring out from the pale of mystery that which we attempt to define, and place it in the clear light of intellectual perception. It is mysterious still, and incomprehensible as mind. Its incomprehensibility forestalls our efforts to gain a conception of its true nature, and renders unphilosophical any attempt at complete definition. Yet we

have no difficulty with *ourselves* in this regard when we talk on the subject, for the conscious possession of life as a vitalizing force within us compels the most ready intellectual assent to the fact, inexplicable as it is. When a man says by the fore of inward consciousness, *I live*, he cares not who says, "You know not what you are talking about"—and he scorns any attempt at an analytic solution of the fact. An appeal to consciousness is a sufficient verification of it.

This energizing force of which we are so consciously possessed, is located in and acts through the nervous system in the same mysterious manner that mind—the power of thought and all mental phenomena—is located in and acts through the brain.

The nervous function is peculiar among bodily functions. It does not act physically or chemically as do various functions of the body. Nor is its functional power so localized that it is wholly exerted within and upon itself, like the functions of the stomach, the heart or the transformation power of the tissues. The functions of the nervous system are wholly unlike any known phenomena of other bodily functions. Its power is distributed everywhere, to all organs of the body and presides over and controls their functional activity. The nervous system makes of the great diversity of bodily organs, a harmonious whole. It causes every organ to act in harmony with every other organ, and creates that sympathetic relation between organs remote from each other with widely different functions, which is apparent when disease rudely invades the citadel of life, or any one function becomes unduly stimulated. When an unusual muscular effort is put forth, the circulation of the blood is quickened, and by this mysterious harmony of functional action an increased vital energy is exhibited in the lungs. Were it not so the increased amount of blood carried to the lungs would not be sufficiently oxygenated and the carbonic acid remaining in the blood would soon create disorder.

It being made evident from general observation and carefully conducted experiments, that the exciting cause of all

functional action whether in the development and growth of the organ themselves, or directed to maintenance of function or metamorphosis of tissue, resides in and acts through the nervous system as the vitalizing power of the body, it becomes an important study to observe its limitations, and the characteristics of its working.

The most observable characteristic of vitality is its limited duration. It has different periods for sustaining functional action in different species of organized beings, and in different individuals of the same species. In all organisms it sooner or later becomes extinct, and their devitalized material forms are resolved into their original elements. This we call death. Again, vitality differs in force or strength in different individuals, and apparently in the same individual at different times.

Another proposition co-ordinate with the one first named, is that vitality is a limited force in the sense of not being adequate to resist every and all influences that oppose vitality. It is, therefore, limited and variable in its power to promote functional action equally in all organs at the same time. I consider this a great physiological fact on which hinge many of the phenomena of development, the performance of function, and well defined pathological conditions.

Mark well the distinction between the fact previously mentioned, that there is an apparent difference in the amount and force of vitality in the same individual at different times, and the fact last mentioned, that there is a limit to its power that functional action is not and can not be promoted at any time, equally in all organs. The former is an indication or symptom of impaired function. The latter is compatible with the most complete functional performance; and, as I propose to show, is to be recognized as a physiological law. Should we find it to be such a law, and not a mere accident of disease or an idiosyncrasy, it will afford a ready explanation of much that is obscure in ætiology, and give an open door to diagnosis through which we may see and account for many cases of observed want of harmony in development, faultiness in structure, and functional weakness.

This leads me to the postulate which I have announced as the subject of this essay,—that *alternation is a law of vital action*.

That vitality is variable in its manifestations when the body is diseased, is a fact of the commonest observation; and the diseased condition is looked to as accounting for any changed manifestation of vital phenomena. But if in the most healthful physiological condition the same variableness and change in vital phenomena appears, it certainly can not be the accident of disease.

The external manifestations by which we in general determine the degree of vitality supporting the organism, is no certain indication of the real amount of vital force mysteriously pervading the whole system. Hence it may not be true that at different times one is possessed of different degrees or different amounts of vital energy—only apparently so.

The fact that in our most healthful condition vital activity is not equal in all parts, and in all functions of the organism at the same time, compels the conclusion that vitality is limited as an energizing force. If its capabilities as an exciting force were unlimited, we could see no reason why the same degree of vital activity should not be found in all bodily functions at the same time, promoting a uniform and steady development of all parts of the system equally. But vitality being limited, and physical development and growth being unequal, as is plainly evident from well observed facts, the conclusion is inevitable, that vitality as an energizing force alternates in its actions upon different organs according as this one or that needs the vital stimulus to increased action in promoting harmony of development or equilibrium of function. This to my mind admits of plainest proof, and affords explanation of many obscure teachings in practical science.

We will attend first to the proofs, then to the practical application.

The harmonies of nature are so marked and wonderful, that processes which seem intricate in one department, are revealed to our full comprehension by analogous processes in some other department with which we are more familiar.

If we turn our attention to a healthy growing shrub in early spring time, and carefully turn over the earth at its base, we may discover that the root has already made a growth of several inches while there is scarcely a sign of functional activity of the shrub elsewhere observable. If after a few weeks we look at it again we shall see that the leaf-buds or flower-buds have expanded largely, while the root has made very little if any progress beyond the point where we observed it before. The buds unfold, and the leaves expand in size, while there is no apparent growth of stem. Again we look at it and find no perceptible change in the foliage, but we find a growth of wood. At length the stem ceases for a while to grow, no new leaves are being put forth, while the vital forces are occupied in the production of roots to preserve the harmony of development and to secure nutrient support corresponding with the increased and increasing demand. When the flower of a fruit bearing tree drops its petals, the vital forces are directed to the rapid production of fruit; and if the fruit is very abundant the woody fiber ceases almost entirely to grow. The stoned fruits, as the peach and the plumb, always surprise us with their rapid growth in size for the first few weeks, and equally surprise us in the succeeding weeks by apparently ceasing to grow at all. There is no increase of the young fruit in size, but nature is occupying her forces in hardening and maturing the stone, and the enclosed seed germ.

This example from one of the great kingdoms of organic nature furnishes a series of illustrations of the law of vital action in its *working by turns* in different parts of the same organism—an alternate working and rest. And the suspension of the more active working is not the result of disease, or any abnormal condition, but is in perfect harmony with a law inherent in physical nature.

We have also in this illustration a confirmation of the fact above mentioned, that vitality is limited in the sense of not being adequate to conduct all the operations of development and growth at the same time, and thereby declares most fully the great physiological law of alternation in the develop-

mental processes of distinct parts toward a complete whole. If we turn now to the animal kingdom, we find the same law.

Dalton, in his physiology (p. 638) in presenting the subject of the development of the *cerebro spinal axis* gives an illustration of a foetal pig five-eighths of an inch long, showing the embryonic development of the brain and spinal cord. He remarks concerning the illustration thus: "It will be observed that the relative size of the various parts of the encephalon is very different from that which they afterwards attain in the adult condition. The cerebellum is very much inferior in size to the medulla oblongata. Soon afterwards the relative position and size of the parts begin to alter. The hemispheres and tubercula quadrigemina grow faster than the posterior portions of the encephalon. * * The relative dimensions of the parts are constantly changing." Let it be borne in mind that the different parts of the *cerebro spinal axis* begin their development at nearly the same time, but under the operation of the law of alternate vital action, the successive stages of development are unequal.

In the human subject the younger the embryo the larger are the head and upper parts in proportion to the rest of the body, showing the ascendancy of one part over another in the rapidity of growth at different periods of development.

We read again in Dalton (p. 646) that "after the small intestine is once formed, it increases rapidly in length. It grows indeed faster than the wall of the abdomen, so that it can no longer be contained in the abdominal cavity, but protrudes in the form of an intestinal loop, or hernia, from the umbilical opening. This protrusion of the intestine can be seen during the latter part of the second month. At a subsequent period however the walls of the abdomen grow more rapidly than the intestine. They accordingly gradually envelope the intestine and at last enclose it again in the cavity of the abdomen." Viewing the embryonic development as here presented, the alternation of vital action is clearly manifest: and it will be readily seen that should anything occur

to disturb this alternation at the proper time, the result would be a case of congenital hernia.

In dental science we have examples as fully illustrative of the law of *alternate vital action* as those already referred to.

Tooth development can be studied intelligently only in connection with the development of the maxillary bones. The teeth have their after-growth, and life-long support in these bones. While zoologically and æsthetically speaking they may give character to the features of the face, physiologically the maxillary bones have their existence and development for, and in subservience, to the teeth as functional organs.

Along the semi-cartilaginous line of the embryo maxilla is seen as early as the sixth week of gestation a groove, and in this groove, a little later are seen two or more papilla. From the tenth to twelfth week the groove deepens, and membranous tongues are projected from the opposite sides at regular distances to form sacks for the tooth germs, and sockets for the future teeth.

No sooner is this condition assumed than the tooth papilla makes a rapid growth high above margins of the crypt in which it was sunken. Then for a few weeks it ceases development, and the surrounding sack takes its turn of growth, the papilla is again found below the surrounding membrane, the borders of which contract and shut the germ in. Thus the tooth germ alternates in growth with the sack which encloses it.

Pursuing the development farther we find the pulpy tooth appropriating lime salts in the process of dentification, and alternating this process with the ossification of the alveolus. Both processes do not proceed equally during the same period of time. It might be said that there is possibly a deficiency of bone phosphates, so that it would not be vitally economical to conduct the building up of both tooth and socket at the same time—and that a supply of more material, might set *the whole* machinery in motion. This statement assumes that the strength of vital action exhibited, depends upon the amount of constituent elements artificially supplied.

But observing the operation of the law of development under the power of both vegetable and animal life, whether it be the development of organs near to or remote from each other, composed of the same or of different elementary constituents, all in harmony with the law of alternate vital action, it will be difficult to compel the assent of the judgment to any interpretation of natural processes which ignores that limit of vital action which induces alternation as an inherent law of organic function.

In tracing the operation of the law still further in the development of the dental organs, we find that when the imprisoned tooth is ready to emerge, with only its crown and neck dentified, vital development leaves here the incomplete root with only a sufficient amount of vital force to preserve the tissue *in tact* while the main force of developmental energy is employed in the emargination of the alveolus to let the imprisoned tooth through. The work is now not building up of bony tissue, but tearing it down by absorption. Just so soon as this bony covering of the alveolus is removed the alternating work of tooth development again goes on with vigor, and the pearly crown emerges from the gum. When the crown is fairly through, vital action returns to the work of building up the walls of the alveolus to embrace firmly the neck of the tooth.

Having thus, by numerous examples, made evident the fact of limited vital force, and the law of its alternate action, I proceed to some observations of a practical nature, and to adduce some peculiar conditions, both of a physiological and pathological character, which this law may aid us in explaining.

Let it be borne in mind that all parts of the human body do not begin their development at the same time; that new functions are developed at different periods after birth; some organs are of slow growth, requiring many years to develop the full power of their functions, while others attain their complete functional power in a few years; that some organs after complete activity for a series of years, cease their function entirely. The age of twelve to sixteen years marks the

period when the organs of reproduction are developed, and forty-five or near that, the period when the function ceases. It is said that some of the carpal bones do not begin their ossification till twelve or fifteen years after birth. On the other hand the teeth attain their full size and full performance of function at from twelve to fourteen years of age.

The teeth it will be observed are an example of early and rapid development. To accomplish this the vital force is taxed to a greater degree than is required for these organs in any after period in life. This greater activity of the vital force in developing the teeth implies a less activity somewhere else, or a cessation of the developmental process in some other organs. Besides the extra amount of vital energy required at this period for the development of the teeth, another organ, the stomach, is undergoing a rapid development at the same time, and also takes from the sum of vital force with which the body is endowed a very considerable share. The stomach is undergoing a change in preparation for the new order of things to be introduced and made necessary by the function of the teeth. The stomach of the toothless infant is in no proper sense a stomach at all. It is little less than an intestinal enlargement. The right extremity of that portion which afterwards becomes a stomach passes so gradually into the intestine that the pilorus does not distinctly form the line of demarkation between the two. But when by the development of the teeth nature indicates the arrival of the time for nourishing the system with more solid food than milk, the vital forces are called to producing an organic change in the digestive system, Milk having been the only food of the infant, a kind of ailment which need no detention in the digestive tract to liquefy it, such an organ of digestion as is the stomach of an adult was not needed. But at the time of the emergence of the teeth the stomach assumes the form of a well distended pouch where solid food, too often poorly masticated, is detained and liquefied. This change of form requires a more than ordinary amount of the vital force.

This is the period of teething so fraught with disease and

death to multitudes of the human family. Let us apply the law of alternate vital action, in explanation.

If the theory be correct that vitality is a limited and fixed sum, what is required extra of vital force to carry on the development of the teeth and the stomach must be withdrawn from some other organs, which will, for the time being, be feebly supported and therefore predisposed to functional disturbance from outward impressions. The lungs not being vitally supported as usual, pulmonary diseases may at this period be induced by very slight exposures. The skin also having contributed of its full vigor of vitality to the demand of the teeth and stomach, does not as fully void its glands of the effete matter, and eruptions on the face and scalp appear. Another change made necessary by the development of teeth and a new diet, is the lengthening of the alimentary canal. It is a well-known fact that the relative length of the small intestine is not the same in the infant as in the adult. This work being in progress during the period of teething is an additional tax on the vital energy, which must, for the time leave the function of digestion feebly supported, and derangement of the bowels is a common result. The same susceptibility to functional disturbance may be noticed in other organs.

In tables of mortality we are furnished with a list of deaths by "teething," as though *teething* were a disease! We might as well call child-bearing a disease. It is true that the period of the deciduous teeth, for reasons set forth in this essay, is peculiarly open to sudden, fearful and fatal disease. But let us not confound the natural physiological process of teething, with the fearful train of diseases that sometimes attend it.

Let us pass on now to the age of puberty. At this period in life some of the most important organs of the whole physical economy pass to rapid maturity, viz: the organs of reproduction. The bodily languor, the listlessness, inattention, and general waywardness so often observable from the age of twelve to sixteen can no doubt be traced to a series of functional disturbances in organs weakened for the time being, in consequence of the extra amount of nervous vital

energy required to develop into maturity the functions of generation.

Observe now the limitation of vital force in the daily performance of bodily functions. With the stomach full and in the active process of digestion, the brain acts feebly and vigorous thinking is an impossibility. On the other hand while vigorous thinking occupies the brain, the operations of the stomach are disturbed. This is explained on the theory of limited vitality and the consequent necessity of *alternate action*. It is therefore unphysiological to require full-force operation at the same time, of both stomach and brain. But alternate functional action brings them into harmony with the law of *alternate vital action* and their working is thus made healthful.

I wish now to call your attention to the prevalence of dental diseases with women during pregnancy. If a woman in this condition be in health, all the functions of nature are in their most active state, each contributing its share to the production of like parts, and a symmetrical whole, of a new being in embryo. This being nature's chief, highest, and grandest work, she makes peremptory demand upon the system for all available energy even at a risk of less important organs and functions. Parts previously weakened by disease are now less able to resist the irritating and disturbing causes, and pain and distress follow. This is emphatically true of the teeth. Wisdom points to the remedy. Before this period arrives, the teeth should be put in the best possible condition of which dental skill is capable.

Let us consider for a moment toothache in the after part of the day. No man's vocation in life is carried on without a waste of bodily tissue, which the various functions of nature must daily reproduce. The use of the feet and hands, the movements of the body, the turning of the head, the act of seeing, hearing, tasting, smelling, the performance of internal bodily functions, the action of the brain for even a moment's thought, the expression of sentiment or emotion, all, and every one of these various phenomena are attended with a waste of organized substance which the bodily

functions must daily reorganize. This performance of function is carried on by the nervo-vital force, an exciting cause. Waste and weariness are convertible terms in this connection. If there has been great waste, there is great weariness. vital forces are at once occupied for the recuperation of this lost tissue and strength for another day's labor. The diseased parts, in the meantime, are less vitally supported and declare the condition in which exhausted nature has left them, by the sensation of pain. If the teeth are rendered vulnerable by extensive decay, an *evening attack* of dentalgia may be confidently expected during the period for recuperation even to the extent of banishing sleep, "tired nature's sweet, sweet restorer."

It will have been observed in considering the subject thus far that alternate vital action implies an *alternate suspension* of vital action. It will therefore readily be seen that temporary reductions or suspensions of vital action in different parts of the body are not necessarily referable to pathological conditions, but are in perfect harmony with physiological law.

This leads me in closing this essay to allude to the grooved and pitted condition of the enamel not unfrequently seen in healthy mouths.

I know of no other account having been given of this condition of the teeth than that it is caused by a suspension of vital action in the enamel organ during the period of tooth development, prior to the emergence of the teeth from the gum, and induced by some constitutional disease, like measles or small pox. In view of the subject as it is here presented it is perfectly evident that there *might occur a suspension of vital action* in the enamel organ caused by the presence of such diseases as have been named, and others of like distinctive character. But it is not by any means evident to my mind that this grooved and defective condition is the result of such suspension of vital action. If the teaching of this essay be true, alternate activity and suspension of activity are the *law* of vital economy. This suspension does not, therefore, result in defect of tissue, but the functional work is resumed where it was left off, and carried on precisely as

though it had not been suspended at all. This is according to nature, animate and inanimate, in all her developments.

There are reasons which to my mind militate against the aetiological account of this form of defective structure as commonly given in the text books of dentistry. We find that in the development of very many and probably all of the tissues of the body there are repeated suspensions of vital action, and yet the tissues become complete and perfect. It seems very strange, if true, that suspended vital action should be so peculiarly marked on the teeth, and not elsewhere in the bony structure; and strange indeed that it should not appear in the roots of teeth as well as in the crowns—roots that were in the in the dentifying process at the same time. There has never come under my notice a single case where like effects were seen on the roots of teeth. Furthermore, in my experience in operating on such teeth I have failed to find corresponding grooves in the underlying dentine. It appears therefore to be confined wholly to the enamel.

When I have been inquired of by patients and by the parents of children as to the cause of the grooved and pitted condition of their teeth, and I have named some of the constitutional diseases common to infants as the probable cause, I have very often been met by the remark that their children never had any of the diseases named, and had never been seriously ill. Of course my theorizing went to the ground in the face of such statements, and I was nonplused. In offering a new explanation of that condition of the teeth now under consideration, I dare not be dogmatical or very confident until by carefully conducted observation I am enabled to place my theory upon the more substantial basis of fact.

Premising thus, I am prepared to state my conclusions from only very limited observations, viz: that the horizontal grooving and pitting in the enamel of teeth is not the result of suspended vital action during the developmental process while in in the sacular stage, but is accomplished after the teeth have cut the gum, by a solvent; and that each groove and alternate ridge, mark successive stages of their emergence under the the law of alternate vital action.

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It is well known that a very acrid fluid is poured forth from the margins of the gum when the mucus membrane is diseased, and that this very acrid secretion of the mucus follicles has physical characteristics which retain it in contact with the fresh crowns of the emerging teeth for a very considerable length of time, despite the washing with the more fluid saliva. We have seen in the earlier consideration of this subject, that the teeth do not make a uniform and steady growth and emergence from the gum, but that a growth of one, two or three months, is followed by a cessation of growth for a similar period of time. During this period when the teeth cease to grow, should they be constantly bathed along the line of contact with the margin of the gum, with the acrid fluid above mentioned, there must inevitably occur such a solution of the enamel as to form a furrow or groove. During the succeeding months of outward growth from the gum, the solvent is not long enough in contact with the enamel to produce results as in the preceeding months, and the enamel not wasted away is left in the form of a ridge. This process going on during the whole, or any considerable portion of the period of the emergence of the teeth, would produce a series of alternate ridges and grooves, and in a less dense structure of the enamel, lines of indentations or irregular depressions.

With a brief recapitulation I will close. I have called your attention to numerous physiological and pathological facts, some of which have been ascribed to disease, others to a freak of nature, and others still to constitutional idiosyncrasy or to accidental circumstances, which I have attempted to explain as occurring under the operation of a physiological law common to all vital organizations. If I have succeeded in establishing the fact of the existence of such a law, and made clear the explanation of the facts alluded to, and made possible a like explanation of an indefinite number of facts of physiology and pathology, three important branches of a noble science,—actiology, diagnosis and therapeutics,—will have been made richer thereby, and mankind whether drawn by fortuitous circumstance or forced by necessity into suffering, will reap the benefit of applied science through the wisdom and skill of the kindred professions of medicine and dentistry.

NEURALGIA.

BY R. L. COCHRAN, BURLINGTON.

Read before the Iowa State Dental Association.

Mr. President and Gentlemen:—I wish to occupy a short time upon a subject with which I claim every dentist should be familiar; for how often are we called upon to relieve pain with which the teeth have no connection, and though there are many diseases of the mouth and head which should come under the treatment of the dental physician, yet I shall confine myself for the present to neuralgia, a disease of the nervous system manifesting itself by pains nearly always unilateral which appear to follow the course of particular sensory nerves; the pains are usually sudden, of a darting, boring or burning character; they are at first unattended with any local change which can be recognized; it is universally the case that the existing condition of the patient at the time of the first onset of the disease is one of debility, either special or general, so that the attention of the physician must not be directed only to controlling the pain but also to remove the cause, whatever that may be. Usually the dentist is not considered as having the authority to treat his patient beyond the teeth, and I am sorry there are some dentists who so regard the matter themselves, and yet consider they are in the way of progress; but, friends, believe me, the time is not far distant when the intelligent and educated dentist will be required to treat his patient, no matter whether the cause be in the head or stomach, and I say further, the dentist who is unable to write an intelligent prescription, not alone for neuralgia, but the many other diseases which are constantly presented, is far behind the standard of a first class dentist. I ask, why send your patient to an M. D. when it requires something more than filling or extracting a tooth? Are they of a different creation? No, gentlemen, they are not; then let us prepare ourselves to treat our patients who place themselves under our care, without

asking aid of those who become acquainted with the disease only as we can, for I repeat it, we can not be successful dentists and rise to the standard of our blessed hope, and yet confine ourselves to putting carbolic acid in a decayed tooth. With this feeling I wish to offer a few suggestions relative to neuralgia, knowing it is too complicated a disease to do more at this time than simply touch a few points.

A great characteristic of neuralgic affections is that the pain is intermittent (or, at least, remittent) in every stage of the disease. One of the most common varieties of neuralgia, is sick headache; the affection is entirely independent of digestive disturbances, though it may be aggravated by their occurrence; it usually attacks persons during their bodily development, induced by precocious straining of the mental powers, suffering most after fatigue or excitement, the patient generally finding relief in nausea and vomiting.

Neuralgia may be ushered in by a remarkable anæsthetic condition of the parts, afterwards to become very painful. Severe attacks of neuralgia are usually complicated with secondary affections of other nerves, and in this way congested blood vessels, arrested secretions from glands, ulceration of tissue, etc. are sometimes brought about. I knew of a case, where a piece of iron being removed from the arm cured neuralgia in the head after almost every known remedy had been given without any good effect, save temporary relief from pain.

It is also noticeable that with a general declination of malarial fevers, consequent on improved drainage or cultivated lands that neuralgia becomes constantly more scarce. Neuralgia is oftener met with in persons between 25 and 45 years of age than younger or older, for it is in this time of life that individuals are subjected to the most serious pressure from external influences; the men if poor, are struggling for the maintenance of their families, or if rich and idle are immersed in dissipation, while the women are going through the exhausting process of child bearing, or are devoured with anxiety for a certain position in fashionable society, but the most serious time to be attacked with neuralgia is the period of declining

life. It is at this time most severe and intractable, and but little encouragement can be given persons after they have entered upon, what may be called the degenerated period of existence.

Neuralgia is eminently hereditary. It prevails in particular families, breaking out in successive generations, and is claimed by some, that these neuralgic families are distinguished by a tendency to paralysis, epilepsy, hypochondriosis or alcoholic excess, and it is a fact that certain influences, especially that of excessive drinking, which tend to produce degeneration of the nervous centers, are powerful predisposers to neuralgia showing that the descendents of drunkards often suffer the pain of the father's sin.

Anæmia (or the diminution of red globules) by whatever cause induced, favors the occurrence of neuralgia, for a very large proportion of those who suffer from neuralgia are anæmic, with regard to the dependence of neuralgia on anæmia, Romberg says, it seems as if pain were the prayer of the nerve for healthy blood. Under the head of neuralgia are braced a group of local affections characterized by pain occurring without inflammation or any appreciable change in the part affected. All that can be said of the pathological character of these affections, is that they consist in a perversion of sensibility, it may be abruptly developed, but, in the majority of cases, there are premonitions. I believe it is generally conceded to be sudden in one-seventh and gradual in six-sevenths of cases, the premonitions consist of a feeling of weight or dull pain or a sense of heat, or some uncomfortable sensation in the seat of the affection.

There are two functions always wrong; those of the nervous system on the one hand, and those of the digestive system on the other. You must seek to put the digestive organs right, or to soothe the nervous system, according as they may seem to be the principal. Neuralgia becomes less curable in each successive decade of life, more especially after the commencement of organic degeneration. The diagnosis of neuralgia is to be based on the character of the pain, its situation in the course of the nervous trunk or its branches, tenderness

of the parts, shifting of pain from one nerve to another; thus the neuralgia may be transferred from a cranial to a spinal nerve.

On the whole, the diagnosis of neuralgic affections, from others which may involve pain, is not so difficult, if it is possible to get a full account of the patient's history. The points to be considered are whether the pain is unilateral, has the patient suffered from neuralgia before? and if not, has it prevailed in his family? Was it preceded by numbness, or nervous depression? whether the excitant appeared to be cold, or a nervous shock, or a direct physical injury? Has the pain continued any length of time? Whether it is not dependent on a local, mechanical, leach as a tumor, etc., are there any diseased teeth? An affirmative answer to any two or three of the questions, will justify treatment for neuralgia.

The treatment of neuralgia depends upon the improvement of the general nutrition, that of the nervous system, proper condition of the blood, narcotic stimulants, and remedies which exert a direct influence upon the affected nerve, and may be classified under three heads. The first division includes all remedial measures which are intended to improve the nutrition, particularly that of the nervous system, or to remove any vicious condition of the blood which may impair nervous functions. The second division includes the narcotic stimulant remedies. The third division comprises all the remedies which are destined to exert a direct influence upon the affected nerve.

The constitutional treatment under the head of nutritive remedies deserves our first attention. By far the most important is the animal fats, for fat must undoubtedly be applied to the nutrition of the nervous system. Cod liver oil occupies the highest rank among fatty remedies, and should be given where it is agreeable to the stomach, in doses of one table spoonful, two or three times a day, alone or mixed with some mucilaginous liquid, and in connection with this for anæmia, would give *prec. carb. of Iron* in doses of 5 to 30 grains two or three times a day.

Where there is a rheumatic diathesis, iodide of potassium five to ten grains twice a day, acts very favorably, and as an anti-periodic, quinine in three to ten grs. doses as often as required. As a narcotic stimulant remedy there can be no doubt of the power of alcohol, it is as distinct as that of opium, but the dangers of prescribing it as a remedy are too evident, for often instead of employing it in the moderate stimulant doses, which really are of service, they drown their pain with a large narcotic dose, and thus contract a liking for the oblivion of drunkenness. I am nevertheless convinced from the opinions of such men as Radcliff and Begbie, that a fixed daily allowance of not more than one ounce is a decided help to the recovery from every form of neuralgia, there should also be administered hyoscyamus, conium, aconite, morphia, etc., either by the use of the hypodermic syringe or stomachic doses. The advantage gained by the use of the hypodermic over the administration by the mouth, are the greater promptness with which relief is obtained, the small quantity of medicine required, and the less interference with the digestive functions, and in many cases the avoidance of unpleasant after effects of an opiate. I believe it is thought best to use morphia or chloroform with the hypodermic, and not to use more than one-eighth of a grain of morphia for males and the one-sixteenth of a grain for females, and not more than three to 6 minims of chloroform allowing sufficient time between injections to judge of the narcotic effects.

As regards the remedies used in the third division. According to the conclusions of Dr. Valliex none compares with blistering in value; the application if made to the foci of pain excites a direct stimulant effect upon the painful nerve, solacing even when they do not cure, the actual cautery has been used as a counter irritant although dry cupping and sinapisms are more general. There are a number of so called specific remedies for neuralgia, but as it depends upon different causes in different persons, it is absurd to expect that any single drug or even any one plan of treatment will always remove it. We must investigate all the particulars of the case and prescribe accordingly, for there are many cases so

obstinate that it would require months to remove, while others are so simple that a teaspoonful of carbonate of soda dissolved in a little water, taken into the stomach will afford immediate relief by causing carbonic acid to be created, other times a simple purgative will be all that is required. Persons predisposed to neuralgia should always avoid exposure to cold and damp air, without sufficient clothing, thick veils for the face and flannel under clothing are very important as direct remedies and as regards mental influences which unfortunately are often beyond our control, one can only say that the two extremes of a specially laborious and exciting life and an existence spent in the dreamy monotony of idleness are equally hurtful. I have not mentioned the neuralgia so often caused by dead and diseased teeth, exostosis, etc., because I am of the opinion, gentlemen, you are aware of these, and know the treatment.

WHAT EVERY DENTIST SHOULD KNOW.

BY G. B. HARRIMAN, D. D. S., M. D.

Read at the Seventh Annual Meeting of the District Dental Society of the Seventh Judicial District of the State of New York, June 1 and 2, 1875.

Every Dentist should know the different kinds of food necessary to form the different tissues which compose the human system. The food that goes to make and build up the muscular portion; that which is to make bone, teeth and brains; and that which gives heat to the system. At the present time nearly every department of labor has its col-

leges; the lawyer, the theologue, the physicist, the chemist, the dentist, and last but not least we have our agricultural colleges to teach the science of cultivating the earth. If farming is an important science in demonstrating by analysis, the soil, the best vegetables and grains to be grown upon it, and the different manures necessary to supply whatever elements are important and lacking to make the grain grow in the most profitable manner, can we as dentists, engaged in a nobler and more scientific calling which combines the most artistic skill in manipulating taste and intellectual thought to produce the best results, be satisfied, while we don't know the elements that we are operating upon, and the food necessary to build each and every part of the human fabric, to make it sound and durable? The composition of the human body consists of fourteen different elements as follows: Oxygen, Hydrogen, Nitrogen, Carbon, Phosphorus, Calcium, Fluorine, Chlorine, Sodium, Iron, Potassium, Magnesium, Silicon and Sulphur, all of which are found in food grown on cultivated soil; and the human body can not exist a single day without the waste of some portion of these elements. They must be supplied in the atmosphere, water and food. The food we will divide into three classes, nitrogenous, carbonaceous and phosphatic. The nitrogenous is that part which supplies the muscles; The Carbonaceous is the portion which supplies the lungs with fuel and furnishes heat to the system, called *fat*; the phosphatic elements supply the teeth, bone and brain, and give vital action to the whole body. The waste and supply of these elements is very diverse; two and one-half per cent of the phosphatic, twenty per cent of nitrogenous, and seventy per cent or a little over of carbonaceous, are about the average proportion necessary with moderate exercise of the whole system. Where are these elements found in the right proportions? In wheat we find water, 14 per cent; nitrogenous or muscle making material, 14 per cent; carbonaceous, fat or starch for heat, 10 per cent; phosphate for osseous structures and nerves, two and one-half per cent. These three principles are made up of the 14 elements which

compose the human body; and the proportions of muscle making, heat producing, bone and brain feeding elements are about the usual ratio required in moderate weather, and exercise of the mental and physical faculties. The scientific farmer knows that wheat will not grow in soil out of which has been taken any of the essential elements that constitutes that grain; and he either supplies these elements or does not try to raise it.

Yet how many dentists there are in the profession who do not know the elements of the human body, their chemical or physiological structure, and hence are ignorant of the proper hygienic treatment to advise in cases where it would be of great value. The soft and chalky teeth of children and young people can be greatly improved by care, exercise and *diet*. We will name some of the various sources of nourishment most essential to produce good results, oat meal is rich in nitrogenous and phosphatic substances, which go to produce muscle, teeth and brain. Unbolted wheat flour will produce good results. Beans and peas are exceedingly nutritious; they contain a very large per cent of nitrogenous (muscle making) ingredients. Beef, mutton, venison, and trout, salmon, and many other kinds of fish are rich in nitrogenous and phosphatic substances. Cheese contains about 64 per cent of nitrogenous, 8 per cent of phosphatic, and 18 per cent of carbonaceous substances. Milk is very nutritious. The above diet in cases where the teeth have a decided tendency to crumble and disintegrate should, in my mind, be recommended in heroic doses. Superfine flour, pies, sweet cake, fats and starches of all kinds, in cases where the teeth have a tendency to decay badly, should be used sparingly, if at all, for they not only help the decay, but disorganize the whole fabric. Most persons, as every operator knows, who have soft decaying teeth, have a very delicate, nervous organization and small vital energy, more or less hereditary of disease, and suffer extreme pain when undergoing dental operations. "Can we do anything for patients so organized?" asked one dentist. I believe we can help them very much if they follow our advice; for it is

a well known fact in the medical profession that the starch diet which prevails so generally brings many diseases such as nervous debility, feeble constitutions, lung complaints, heart disease, weak and defective eyes, early grey hair and many other ills, which carry so many young and middle aged people to a premature grave. This in a measure can be prevented—not wholly in our day perhaps—but we can commence this reform, and if the dental profession will work unitedly their efforts will produce immense good; and should it be continued by those who are to follow in our footsteps, the children of coming generations will be wonderfully benefited.

Prof. A. Lawrence, in his able report on Dental Chemistry, at Cincinnati, in 1867, before the American Dental Association, says, "What we are, results in some degree from what we eat and drink. Here permit me to suggest, with due deference, that this association ought, in justice to its professional behests, to deprecate the dictates of the fashion in dietetics which virtually starves us in the midst of our surfeits of fine, refined and superfine food. We sift from our cereals the best portions of the grain, and

"To eat the worse we most incline,
And feed the best to filthy swine."

The above remarks of the able brother should be read carefully for they contain much truth. Prof. Taft, in an editorial of the DENTAL REGISTER of March, 1873, in speaking of the causes of dental caries, says, "As in part accounting for these defects, it is held that most civilized nations fail to take into the system a sufficient amount of tooth and bone forming material. The enamel and dentine are thus found under conditions which prevent a due degree of density and thorough calcification. The remedy for this condition in the child whose osseous tissues are still forming is found in the daily use of oat meal, barley, unbolted wheat flour, and such other vegetable and animal aliments as contain an abundant supply of the mineral salts. Many dental practitioners have sought to correct the deficiency of mineral salts in the blood, from which the teeth draw their nutri-

ment by administering phosphate of lime, which is by far the most abundant mineral ingredient of the teeth. How far this treatment has been successful is not yet known; there has been no extensive record of cases. It is manifestly good practice to furnish the deficient substance as far as possible through wholesome foods that contain them. At least such practice can do no harm, and is probably a more natural mode of supplying them. Oysters, beefsteak, milk, beans, peas and barley as well as wheat, are rich in the mineral salts that are concerned in building up enamel and dentine, and should be abundantly supplied to all children. A deficiency of mineral salts in the soil in which wheat and other grains are sown, will produce a feeble crop. It is the same with all vegetables, take the potato different observers state the percentage of magnesia in the ash of sound tubers at from four to five per cent, in diseased tubers an analysis shows less than two per cent. By analysis of several other kinds of vegetables it was found to be true between healthy and diseased structures. Prof. Troupe found a deficiency of lime and magnesia in diseased orange trees. As with the vegetable kingdom so with the animal.

Whenever a structure is arrested in its development and still continues to grow abnormally it becomes chaotic, and this seems to be the fact at the present time in regard to the teeth where people live on "Superfine Flour" where by analysis, we find little less than half of one per cent of phosphatic substances when a whole grain contains five times the above amount. E. Cutter, one of our most distinguished physicians, who has written more or less upon this subject says "the diminution of mineral varies from two-thirds to four-fifths. In other words by the use of flour mankind loses from $\frac{2}{3}$ to $\frac{4}{5}$ of the elements that go to make up teeth and structures. It seems to me that every dentist who has any desire or pride to conserve the natural teeth should look at this subject in its true light, and carefully digest it, that they may be able to give skilful directions and advice to all who may be willing to receive it. I have tried the "superfine" flour diet in my own family, until I was satisfied

of its dangerous character, and have changed it for the unbolted flour with plenty of good beef and nutritious food; and the result I can assure all is exceedingly gratifying. First, eat no "superfine flour" and starches, and allow as little cooked in your family as possible. Second, eat unbolted wheat, oat meal, barley, beans and peas, good beef and mutton, trout, salmon and other nutritious aliments which contain the necessary amount of nitrogenous and phosphatic substances to make good teeth, bones, muscles, and brain, and recommend it to all patients whose teeth have marked tendency to decay.

HOW WE APPLES SWIM.

BY HEZEKIAH JONES, L. O., PLEB.

Ye Gods! and string beans, who would or could have conceived that there actually exists in our midst a scion of nobility. Yet undoubtedly such is the case. Lest some readers may be led astray, we would have you understand that we are not referring to some knight of the soil, who claims to be a sovereign over two by six feet of ground, who rises up in his might and power to deposit his token of sovereignty on election days, but a veritable descendent of either Shem, Ham or Japhet. (Just which deponent saith not, but we do vouch for one of them being his ancestor,) and that he, the living representative of either Shem, Ham or Japhet came into the world by right of inheritance a Bare-un. Thanks to the enterprising spirit that controls the destinies of that model periodical, The Penn. Journal of Dental Science, we have been permitted to peruse the biography of the aforesaid scion. Reader you will never know how we were completely overcome with

mortification when we took up the above journal vol. II. No. 4, and there read the biography of our neighbor L. P. Meredith, M. D., D. D. S. We readjusted our specs looked again, and sure enough there it was L. P. Meredith, M. D., D. D. S., of Cincinnati, Ohio. We were ready to sink and gasped for a glass of water, a thousand recollections came trooping up, of how often we had passed by that sign never thinking that it represented anything more than the name of a respected neighbor dentist. And how time and again we had passed on the street and my chapeau was never lifted, how we had met, shook hands, spoke of the weather, business, etc., as ordinary equals. And now to be told in this modest way that the doctor descends "from an old and titled English family of the same name." "His father of the same name, when a child, came to America with his widowed mother, who was robbed on the voyage over of important papers and valuable portable property, which she was never able to regain, (the lachrymal fluid will flow as I read this sad part of the doctor's biography.)" We read further, that, "Her misfortunes were still further increased by the loss of her remaining means through the dishonesty of a business man, in whose hands she placed a considerable sum for investment." Oh dear! my handkerchief. What an amount of grace the doctor must be possessed of to be able to live through such trials. And just to think the poor disconsolate son's grandmother had nothing left but an annuity, which sufficed to keep her in just comfortable circumstances till her death, but then it is such a satisfaction to be told in the next sentence, that "A number of persons bearing the family name have occupied prominent political and professional positions."

The Bare-un's father, Philip Meredith, with a wisdom worthy of a Greely, concluded to go West, came to Ohio where he embarked in the jewelry business, but as that savored too much of the common plebian, he studied medicine, and strange to say "In 1835 he was married to Julia Sexton, a young lady of great beauties of person and mind." "She was the daughter of Col. Sexton, of Virginia, who held a distinguished position in

the war of 1812." And who was also a man of mind as he too went West, locating a few miles north of Xenia.

It is so touching to be told that "About the year 1845, Philip Meredith finding that his health would not bear the exposure of a physician's life, turned his attention to dentistry, and removed to Cincinnati to engage in practice. Here he remained for twenty years, then retired to a recently purchased home at Yellow Springs, Ohio. Where he passed the remainder of his days."

The father of the son having failed in accumulating a superabundance of lucre for family use, the scion "felt it incumbent upon him to become his father's successor, although his tastes and previous studies inclined him to a pursuit altogether different."

We are utterly unable to comprehend the loss sustained by that vocation towards which genius inclined, but are consoled by the old adage, "As the twig is bent, the tree is inclined." And the world may even yet resound with praises sung in honor of the fame achieved by a direct descendant from an old and titled English family. "At an early age he exhibited more than ordinary ability for a youth, as a writer of both prose and poetry. And during the several years preceeding his beginning of the practice of dentistry, a good many of his productions were published." How marvelous, that one so gifted, so precocious, should live to man's estate, the only explanation given by our biographer, (and he knows) is that the baneful effects were counteracted by "his diffidence which was so great as to prompt him to offer his productions under a *nom de plume*, so that very few have ever known who was the author of some pieces that were very favorably noticed." Oh thou! most modest of men. Why were we prevented from rushing to thy shrine, that we might bow to the scintillations of thy genius. We implore thee to no longer hide thy light under a bushel, but to let it shine forth and illumine the darkness by which we are surrounded on all sides. When we consider that "when but twelve years old, he wrote several chapters of a romance, but he was so mortified and vexed on going into the parlor one evening and

receiving the congratulations of a company assembled, to whom his father was reading the discovered manuscript that he took the unfinished work from his hands and threw it into the fire." With feelings of reverence we behold how from very infancy, genius was embraced by modesty and still goes hand in hand through the scion's daily walk of life. Our heart beats with joy as we read further that the above "plot is still his favorite conception and that he intends to reproduce it some day." We timidly ask that it be not over a *nom de plume*.

The next evidence of a precocious intellect is his ability displayed in the game of chess, at sixteen years of age he won the championship and presidency of a club, conquering the most of famous players in the United States. Having met with but a single defeat he rests on his laurels.

Our biographer goes on to say (and he knows) that, "without any particular object in view, he arrived at that period of his life which has already been spoken of, when he felt it his duty to engage in the practice of dentistry. He has already acquired a fair knowledge of the profession without any special application." an illustration of the law of osmosis. However we are told that "In the year 1867 he graduated at the Philadelphia Dental College, and in 1871 he received his diploma from the Medical College of Ohio." There is, probably, no more marked an instance of considerable success in a pursuit altogether at variance with one's preferences.

We have not space to review the immense amount of work accomplished and detailed by the biographer. Our pulse is quickened as we read that "For several terms he lectured in the Cincinnati Medical College on Dental Medicine and Surgery. He now occupies the same position in the Ohio Medical College."

Now, oh reader, we did think the unprecedented prosperity of those institutions was due to the untiring zeal and labors of the distinguished gentlemen who constitute their faculties; but we are compelled to notice the fact that never until the Bare-un's connection with the Ohio Medical College has any institution west of the Allegheny mountains been able to graduate in one session so large a number of young men. From this

time henceforth we shall never doubt that the unparalleled prosperity of the Ohio Medical College is largely due to the fact of its having a lecturer on Dental Medicine and Surgery, who is a direct descendant of an old and titled English family.

However, we will not hesitate to make the assertion that none other than a direct descendant from an old and titled English family coupled with genius ever could have accomplished such marvellous results in so brief a space of time. His inventions have been numerous and of great value, but with characteristic modesty they have generally not gone far beyond his own office.

Our biographer goes on to say (and he knows) that, as "an operator no one has a more enviable local reputation. He takes great pride in novel and complicated operations, and he has frequent opportunities for performing them for persons of his own city, as well as for those that visit him from a distance; but he never has put himself in the way of extending his reputation in this respect." Thus we see at every turn the excessive modesty that prevents a fellow citizen from obtaining not only a national but world wide reputation.

Most devotedly do we hope that this descendant from an old and titled English family may overcome his exceedingly great diffidence and permit the world to enjoy the fruits of his labors, and in turn to offer homage to deserving genius, and finally when he shall be gathered to his fathers, erect a memorandum over his head that may be known and read by all men.*

*Those desiring copies of the above biography auto, apply to L. P. Meredith, M. D., D. D. S., etc., etc., Cincinnati, O.

July-3

Proceedings of Societies.

THE SOUTH CAROLINA STATE DENTAL ASSOCIATION.

The Fifth Annual Meeting of this Association was held on the 4th of May, in the city of Columbia, S. C.

The meeting was well attended and the discussions harmonious, spirited and interesting.

A Board of Dental Examiners, in accordance with the provisions of the bill recently passed by the Legislature of the state for regulating the practice of Dentistry in South Carolina, was elected, consisting of the following gentlemen: J. W. Norwood, Greenville, S. C.; J. B. Patrick, Charleston, S. C.; J. S. Thompson, Abbeville, S. C.; W. S. Brown, Charleston, S. C.; D. L. Boozer, Columbia, S. C.

Among the points of interest advanced at this meeting were the following:

Subcutaneous injections of ergotine and internal administration of same in form of pills for the suppression of violent and persistent hemorrhage after extraction. Application of actual cautery (white heat) by means of electricity for same purpose. Employment of electricity (white heat) for painless devitalizing of pulps.

Dr. Rice spoke against the employment of arsenic and said that he used with entire success a liniment consisting of ten grains acetate morphia to the ounce of carbolic acid which was almost a specific in his hands, curing the worst form of tooth-ache without devitalizing the nerve.

Flattering results had been experienced by many in the use of preparation of oxy-chloride of zinc for capping exposed or partially exposed pulps, some using it directly over the exposed parts, some using a covering of paper, kid, etc., and some using the white oxide of zinc next the exposed part and

filling over this with the oxy-chloride zinc—flooding the the cavity before introducing the filling with carbolic acid or creosote, and using the rubber dam to protect against moisture.

A very favorable report was made by those who had used the "Modeling Compound" of S. S. White for taking impressions of the mouth—reports being that it was cleaner and pleasanter to both patient and operator, and taking a sharper impression than wax.

A like favorable report was made of "Parker and Teague's Impression Compound," granting to it all that was claimed for it by the inventors.

The following officers were elected for the ensuing year: G. F. T. Wright, Columbia, President; J. W. Norwood, Greenville, First Vice-President; B. H. Teague, Akin, Second Vice-President; J. T. Thompson, Abbeville, Corresponding Secretary; T. F. Chupein, Charleston, Recording Sect.; T. W. Boucheer, Cheraw, Treasurer.

The second Tuesday of June, 1876, was selected as the time, and Greenville the place for the next meeting.

After an address by the retiring President, the meeting adjourned to meet as above.

THEODORE F. CHUPEIN,
Recording Secretary.

PROCEEDINGS OF THE MISSISSIPPI VALLEY DENTAL ASSOCIATION.

The next subject considered was sensitive dentine.

Dr. Taft: This condition is usually found at a point of decay. Sometimes however decaying dentine exhibits no increase of sensitiveness at all and yet retains its vitality, in other cases

no sensitiveness is apparent because the decaying tissue becomes devitalized in advance of the decay. Sensitiveness exists sometimes where there is no decay. It occurs in a marked degree at the necks of some teeth. In the cavity of decay it is sometimes confined to a small point, or to the periphery of the dentine, or to a thin stratum of dentine immediately underneath that which is decaying. It varies in intensity and in susceptibility to the influence of exciting agents. Where the vital force is feeble, sensitiveness is frequently not manifested because death of the structure occurs in advance of decay. In some cases there is but little or apparently no exalted sensitiveness, though devitalization does not precede the decomposition. This condition exists either because of the vigorous vitality and consequent resistance to irritation, or it sometimes is dependent upon the character of the agent producing the decay. Sensitiveness of the dentine does not occur as persistent and prolonged pain as in soft tissues, unless the irritating agent be continuously applied.

When sensitiveness of the dentine is confined to a thin layer in a cavity of decay, it may readily be removed by excavation, but if it extends deeply this is not practicable.

Arsenious acid should never be used to destroy sensitiveness of the dentine, even if it should not ultimately destroy the pulp.

Local treatment of any kind is not always effective especially in actively inflammatory conditions. Constitutional treatment will often be required. Simply to remove all irritants and close up the cavity with some non-conducting substance, leaving nature to remedy the condition, is sometimes all that is required. Escharotics, carbolic acid, nitrate of silver and chloride zinc, are often used. Chloride of zinc does not act uniformly, its effect is sometimes of temporary duration. I have used the "Dental Pain Obtunder," a new remedy, for five or six months. In many cases it operates well.

Dr. Morgan: The application of iodine or any mild escharotic will often relieve sensitiveness about the necks of teeth. Filling the interstices between them with prepared chalk and

allowing it to remain over night often accomplishes the object. I have heard that sulphuric acid is a good remedy, I am unwilling to employ so powerful an agent.

Several gentlemen then related their experience with the "Dental Pain Obtunder," some reported favorably and others unfavorably of it.

The subjects, "Dental Hygeine" and "Treatment of exposed pulps" were considered in conjunction.

Dr. Cravens, who introduced the practice of capping pulps with lacto-phosphate of lime, was called upon to explain his process and theory.

Dr. Cravens: The powdered phosphate of lime can be obtained at any drug-store, it is nearly insoluble. Lactic acid is a solvent of phosphate lime but it has little effect on the powdered phosphate. The combination of the two is mechanical not chemical. My idea is to digest the phosphate lime in the lactic acid and by placing the compound in contact with the pulps I expect to effect an assimilation between the plastic lymph or liquor sanguinis, thus forming a clot. My practice is to cut the pulp slightly causing a drop of blood to flow out, this forms a clot. Place a bit of bibulous paper against this and you find it is stained with a yellowish fluid which you recognize as the plastic lymph. It is expected that the lacto-phosphate of lime will unite with this lymph to form a covering over the exposed pulps. I have been asked whether carbonate of lime is not formed? I do not know. It is immaterial to me.

As a result of the application I find a new deposit which covers the pulps just to the extent of the exposure. Examination proves that this is not simply hardened phosphate of lime but a new substance. It is a transparent or semi-translucent substance resembling glue. It is entirely different from this overlaying substance which I have remove. The general continuity of surface in the cavity is preserved. The line of union of the dentine and the formation is apparent to the eye, but can not be distinguished by the touch of an instrument.

The phosphate of lime deteriorates when exposed, the lac-

tic acid precipitates in flocculi. A superior preparation of the lacto-phosphate has been imported from Berlin.

The lactic acid applied in a sensitive cavity and protected with a covering of oxy-chloride of zinc soon effects a cure of the sensitiveness. The dentine will be found to present a peculiar flinty appearance.

Dr. Cravens, in conclusion, gave a detailed account of three cases in which he had capped exposed pulps, *none* of which had resulted unfavorably.

Dr. Reed spoke of two instances in which he had used the lacto-phosphate without success. Nevertheless he thinks it may prove valuable. Dr. Taft treated unsuccessfully a tooth for him (Reed). Dr. Jay thought the experiment thus far had proved rather unsatisfactory.

Dr. Rehwinkle spoke hopefully of the new remedy and said he did not feel ready to condemn any new theory or method of practice which was not manifestly impracticable, until he has made thorough investigation and trial of it. We often make mistakes in the selection of a specific, The fault is often attributable to our errors of judgment rather than to the inefficiency of the remedy.

The preserving of an exposed pulp, when there is not a state of inflammation or diseased condition is ordinarily a simple matter requiring only delicacy of manipulation to insure success. Dr. Watt's, method of capping with a solution of gutta percha and chloroform is excellent. Do not think it possible to preserve the pulps alive when suppuration has commenced.

He hailed the announcement of Dr. Craven's discovery with delight when that announcement was first made in the Journal, believing his method of treatment be a rational one.

He regards the phosphate of lime as a valuable agent to remedy the softened chalky condition of teeth that is so frequently met.

Dr. Watt: The result of inflammatory action in the exposed pulp is, a throwing out of a plasm which is organic matter. Lactic acid will do several things. It will arrest decomposi-

tion and operate as an antiseptic. It will dissolve away the debris. The phosphate of lime I regard merely as a vehicle to carry the acid to the parts. In the preparation of lactophosphate of lime we have a mechanical mixture, sub-phosphate of lime with a solution of phosphate of lime in lactic acid. Provided the two would remain together, is that solution of any use? Would it accomplish the same result? I think not quite. Supposing the lactic acid lets go the sub-phosphate with which it is already combined. As particle after particle is released it acts on the deteriorated foreign matter of the pulp, in its nascent condition in producing its action more promptly and with less pain.

It is I think, the lactic acid which produces the result.

Dr. Jay inquired what course should be pursued where the pulp is strangulated and protrudes through a narrow orifice into the cavity, presenting a prominence.

Dr. Watt: In such cases I have applied the rubber dam and thrown a fine jet of rhigolene upon the projecting part, almost freezing it, on the principle of reducing strangulated hernia. Sometimes I have dropped snow or a small particle of ice into the cavity then applied a little carbolic acid. The combination produces a most intense cold, the carbolic acid, because of its affinity for water, melting the ice rapidly. The difficulty is that as the part has been only recently strangulated there is danger of too much destruction of tissue.

Dr. Craverns asked what property it is of this preparation which allay sensitiveness of the dentine. Dr. Watt replied that the result was mainly due to the lactic acid. Said he was a believer in the theory of nerve fibrils permeating the dentine. They are dissolved in the acid. The gelatinous portion of the dentine becomes hard like horn under the action of the acid.

Dr. Taft said he had been experimenting with this preparation for about a year with encouraging results. Had not always met with success. Some persons never indorse a theory or feel encouraged in their investigations unless their experiments are uniformly and invariably successful. In the case of Dr. Reid there was a complication. The periosteum

as well as the pulp was diseased. He has always thought that if circumstances had favored the devoting of proper attention to the treatment of the case, the pulp could have been saved.

He related a case of a gentleman for whom he had treated an exposed aching pulp six or seven months ago. He cleaned out the cavity as well as possible, and applied the lacto-phosphate of lime, sealing the cavity with wax. Although it had been aching severely for three days, it now ceased at once. The patient returned in three days and said he had not suffered any pain. He would not have known that it had ever ached. Made a second application with the same result.

Then applied carbolic acid as an experiment and sealed up with wax. Afterward applied the lacto-phosphate for the third time.

Noticed that the pulp which at first was of a deep red color, had changed to a rose color. After the fourth application he filled with oxy-chloride of zinc and that filling remains to the present time. The tooth has never given any uneasiness. This is only one of several similar cases. Some would say the pulp is dead in this case. There is no indication of it.

He has lost two cases out of twenty or more.

Editorial.

SALICYLIC ACID.

This agent is being tested by quite a number of dentists, all of whom, so far as we have had an expression, report very

favorably of it. We have been using it for more than a month, and are better pleased with it, as we become more familiar with its use. It seems to serve well many of the purposes, at least, for which creosote and carbolic acid has so generally been used. The following cases represent what seems to be almost its average efficiency: Dr. T. had a left central incisor, with a medium cavity of decay upon the distal proximal surface, which had been filled for over twenty years. The pulp was never exposed. About nine years ago, it became devitalized from some unknown cause; an opening was made at that time through the palatine surface into the pulp canal and the dead pulp and debris were removed; disease of the periosteum with tendency to the formation of abscess occurred previous to this; though the ordinary treatment for such cases was employed, a chronic irritation and soreness remained, so that slight percussion on the tooth would give pain, varying somewhat at different times, from a variation of systemic and other conditions. The canal at and near the end of the root was filled with a small pledget of cotton moistened with creosote and the remainder of the canal and chamber was filled with Hill's stopping, this remained till about one month ago, when the cotton and stopping was all removed, the latter in a very offensive condition; the opening was made through the end of the root, through which blood and pus of a very offensive character escaped. The whole was cleaned out as thoroughly as possible with the excavator and water. Then the canal was filled to one half its length with salicylic acid in crystals, and the remainder filled with Hill's stopping, Within twenty-four hours the indications of an abscess had entirely gone, the soreness had entirely abated, and has not in the least returned. This was a result that no one would have anticipated by any ordinary mode of treatment.

Mr. M. had an alveolar abscess from the second right superior molar with free and copious discharge of pus through the posterior buccal root; had been discharging for about five months, had been treated with carbolic acid for two months without any apparent improvement. About two weeks ago

cleaned out, and injected a solution of salicylic acid and phosphate of soda in water, three times within a week, keeping it closed up in the mean time during which time the discharge of pus was entirely arrested. Before this treatment there was considerable soreness of the tooth, which had existed in varying degrees for months; after the first application this was wholly relieved, and has remained so since. Every indication is present that a permanent cure is about established. Other cases have been treated, giving about the same results, some of which we will perhaps give after more experience.

It may be used in various methods and different solutions. It may be used in the crystal, as in the first case above described, or in the watery solution, though it is very sparingly soluble in cold water, about one of the crystal to three to five hundred parts of water; warm or hot water dissolves a far larger proportion, but precipitation takes place on cooling. Other solvents are preferable when a stronger solution is required or desirable. Alcohol dissolves a large amount of the crystal; compared with water, this solution may be diluted very considerably with water, without precipitation taking place if gentle heat is applied. Sulphuric ether dissolves a far larger proportion of the acid than alcohol. This solution is efficient when it is desirable to carry the crystal to points difficult of access, the ether immediately evaporates leaving the crystals where they have been carried in the solution.

A solution of phosphate of soda is a valuable solvent, it dissolves a large per cent of the acid, and from the promptness of its action, there is some reason to think that its operation is energized by the power of the phosphate of soda. Further experience, however, must verify this statement before we will venture to emphathize it.

As a disinfectant and antiseptic, it will be a very desirable ingredient for tooth pastes, powders and washes. We have in use a tooth wash prepared by Dr. Wm. Martin, of A. B. Merriam & Co., of this city, which contains salicylic acid. It a very pleasant and a very affective wash, for disinfection, we are so impressed with the value and importance of this agent that we do not hesitate to say to all, try it.

CELLULOID.

We have received the following from the Celluloid Manufacturing Co., Newark, N. Y.:

DEAR SIR:—We have received numerous letters from members of the dental profession, informing us that Josiah Bacon, or his agents, seek to interfere with the use of Celluloid as a base for Artificial Teeth, by asserting that such use is an infringement of the Cummings patent, and by threats of prosecution against all the dentists who use Celluloid and refrain from taking out a license from the Goodyear Dental Vulcanite Company.

We caution the profession against being intimidated or deceived by such statements. The use of Celluloid is not an infringement of the Cummings patent; and as for the threatened prosecution, we guarantee protection to all dentists in the use of Celluloid against any legal assault that may be made against them on that account.

The following opinion by our counsel, HENRY BALDWIN, Jr., Esq., warrants us in publishing this guarantee, and we have no doubt will satisfy all who read it that the statement above referred to, made in the interest of rubber licenses, are false and fraudulent.

Yours Truly,

CELLULOID MFG. COMPANY.

217 S. SIXTH ST., PHILADELPHIA, June 1, 1875.

The Celluloid Manufacturing Co.:

Newark, N. Y.

GENTLEMEN—You submit to me the following letter, viz :
“Goodyear Dental Vulcanite Company, Josiah Bacon, Treasurer.

“BOSTON, FEBRUARY 15th, 1875.

“*Dr. S. H. Wirts, Steels Mills, Ills.*

“DEAR SIR:—Yours of the 12th has my attention. Permit me to inform you that the “Smith case” to which you so aptly allude, has been decided in my favor, and you will find the Supreme Court of Washington will but *confirm* that decision.

“Permit me also to inform you that the use of Celluloid is

an infringement of our Patent, it being the "equivalent" of Rubber, as stated in our Patent, copy of which I enclose.

Yours truly,

"(Signed) JOSIAH BACON, TREAS."

And you ask my opinion as to the truth of the assertion made in the last paragraph "that the use of Celluloid is an infringement" of the Patent indicated.

I understand the Patent referred to as being the Reissue No. 1,904 dated March 21st, 1865, and known as the Cummings patent, that being the only patent involved in the Smith case.

In that case the testimony of the Goodyear Dental Vulcanite Company's expert, Mr. Henry B. Renwick, was that "in order to get a Cummings set of teeth, you must first have a vulcanizable compound of gum and sulphur, and finally vulcanite." The arguments of their counsel accepted this definition of what is embraced in the Reissue No. 1,904 and the opinion of the Court adopts this construction of the Cummings patent.

The claim of the patent is "the plate or hard rubber or vulcanite, or its equivalent, for holding artificial teeth, or teeth and gums, substantially as described." The specification does not mention any material to be used for forming the plate except soft rubber, or gum, compounded with rubber, sulphur, etc., "in the manner prescribed in the patent of Nelson Goodyear, dated May 6th, 1851, for making hard rubber, and is to be subjected to sufficient heat to harden it, substantially as directed in that Patent." "After the plate has been heated sufficiently to harden it, or convert it into hard rubber, or vulcanite so called, the mould is removed and the plate is polished ready for use."

Any vulcanized plate made from any vulcanizable compound would be comprised in the claim under words "hard rubber or vulcanite or its equivalent:" but no plate not vulcanized or made of vulcanizable compound, would come within the claim of the Cummings patent.

Celluloid contains neither rubber nor any other vulcanizable gum, nor sulphur nor any other vulcanizing agent.

Plates made of Celluloid are neither vulcanized nor vulcanizable, and it is not true that the use of Celluloid is an infringement of the Cummings patent, Reissue No. 1,904, dated Mach 21st, 1865.

Referring to certain other letters also submitted to me, in which I find it stated that agents of the Goodyear Dental Vulcanite Company are demanding money and claiming license fees under this Cummings patent Reissue No. 1,904, for the past use of Celluloid, alleging that such use was an infringement of that patent, I would suggest that each dentist should protect himself against such unlawful exactions or attempts, by having any person enforcing such demand or claim arrested and dealt with by the proper local authorities, for obtaining money under false pretences.

Respectfully,

HENRY BALDWIN, JR., Counsellor at Law.

We ask the close attention of every one interested to the above communication.—ED.

THE SMALL CATECHISM.

"Is Celluloid as now manipulated a success as a base for artificial dentures?"

Yes, as nearly so, as any of the cheap bases that are in use.

"Is it as good as RUBBER?" Yes in some respects better.

"Is it durable?"

Thus far it appears to be as good in this respect as any of the cheap bases.

"Can all dentists work it?"

Yes, when they know how. Many manipulate it with as good success as any thing else. Many complain that they can not work it.

Yes, and there is a still greater number who ought to weep that they can not work gold, continuous gum, porcelain etc.; indeed, do not know anything at all, practically, about these materials for artificial dentures, and yet they have no wail therefor.

“Has Celluloid any advantages over rubber?”

Yes, its color is greatly preferable, with it gum teeth are not requisite as a better imitation of the natural gums can be made with it than is usually made with porcelain gum of the rubber blocks. They can be more perfectly arranged and articulated than is possible with rubber sections of teeth.

“Has any improvement been made in Celluloid recently?”

Yes, a very marked improvement has been made within the last year and a half. It is constantly being improved, and this will continue till it is as nearly perfect as possible. Improvement is all the time being made in the mode of working it.

“Is it embarrassed by a patent?” It is not for dental purposes, no license is required for its use. It is not an infringement of any patent so far as we are aware. “Does Celluloid injure the mucous membrane with which it is in contact?”

We have seen no injurious effects from it. If it was half as bad as rubber in this respect we should discard it, and advise against its use.



TENNESSEE DENTAL SOCIETY.

We had the privilege of being present at the recent meeting of this body, and we must say it was one of the best meetings we have attended for a long time. A larger number of papers, and good ones too, were read than is usual at our meetings, and they were, so far as time would admit, fully and freely discussed. The attendance was not very large, but those present went into the work with a will, demonstrating the fact that large numbers are not absolutely requisite to make an interesting and profitable meeting. The next number of the REGISTER will probably contain some of these papers.

AMERICAN DENTAL ASSOCIATION.

The fifteenth annual meeting of the American Dental Association will be held at Niagara Falls, New York, commencing on the first Tuesday of August, 1875.

The committee have up to this date completed the following arrangements:

The Cataract House will accommodate delegates at \$4.00 per day, and the International at \$3.50. Rooms will be reserved at either house for parties making known their desires a few days beforehand. Gentlemen accompanied by their wives should state this fact when ordering rooms.

The N. Y. Central R. R. will sell round trip tickets from N. Y. to the Falls and return for \$17.50.

The Great Western R. R. of Canada will sell tickets for the round trip at one full fare and a third. Parties desiring to avail themselves of these tickets should ask for excursion tickets to American Dental Association.

Round trip tickets from Chicago via Michigan Central R. R. will be sold at \$20 which is less than one and a third fare.

The Grand Trunk R. R. will sell tickets for the round trip at one fare and a third.

The C., C., C. & I. R. R. will sell round trip tickets at the rate of four cents a mile one way, to parties of twenty or more.

C. STODDARD SMITH, Recording Secretary.
G. L. FIELD, Chairman Com. of Arrangements.

Round trip tickets will also be furnished to those going to the Association, via the Hamilton and Dayton, Dayton and Michigan and the Canada Southern R. R. for \$16.00.

By the C., C., C. & I. R. R. parties leaving Cincinnati Monday morning, Aug. 2, at 7 o'clock will reach the Falls that night at 10 o'clock. And going by the Hamilton and Dayton and Canada Southern, leaving Cincinnati at the same time will arrive at the Falls next morning about 6 o'clock.

The Atlantic and Great Western R. R. will sell round trip tickets to the American Dental Association for \$15.00.

THE AMERICAN DENTAL CONVENTION.

The Committee have made arrangements with the proprietors of the Ocean House, Long Branch, for holding the Twenty-first Anniversary of the Convention at that place on the 10th of August, 1875, at 11 a. m.

The Messrs. Leland have, with their accustomed liberality, offered us a hall, free of charge, suitable for our meetings; also to deduct ten per cent from the bills of members stopping at their house. Ample arrangements have been made for the exhibition of instruments, implements, materials, etc. All manufacturers and venders are earnestly solicited to make the display as large and complete as possible.

The profession are cordially invited to be present at this our quarter centennial anniversary, believing it will be of unusual interest.

The Committee will secure rooms for those giving timely notice to the Chairman.

J. G. AMBLER, Chairman,
25 W. 23d st., New York.

A NEW AUTOMATIC MALLET.

Invented and constructed by Dr. E. C. Hamilton, of Washington C. H., in this State, is soon to be introduced to the dental profession. It is simple in its construction, and definite and efficient in its action, and is not liable to become disarranged. From the slight examination we have made of it we think it equal, if not in some respects superior to any thing of the kind as yet presented.

It will very soon be in the market, and then each can judge for himself.

NEW JERSEY STATE DENTAL SOCIETY.

The New Jersey State Dental Society meets at the Ocean House, Long Branch, on Tuesday, July 6th, and continues in session for two days. Let all who can attend.

C. S. STOCKTON, Newark, N. J.

THE
DENTAL REGISTER.

VOL. XXIX.]

AUGUST, 1875.

[No. 8.]

PROHIBITION OF CHLOROFORM IN
ANÆSTHESIA.

BY J. HARDMAN.

Read before the Iowa State Dental Society.

One of the questions now engrossing the minds of thinking men in the medical and dental professions, is whether it be morally right to use chloroform for the purpose of inducing general anæsthesia.

In all the ages of the world where a sufficient degree of mental light prevailed to evince the presence of human reason, more or less effort has been made to palliate pain and suffering, and as man's advancement to a higher plane of intelligence has brought his physique to still an increased sensibility; so the efforts to combat pain and suffering arising therefrom, have in like measure increased as a consequence.

Aug-1.

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"Nature," it is said, "is her own interpreter." Hence we perceive she has for obvious purpose needed this increased sensibility to accompany as a handmaid of safety, to our very existence. But conceding that it be justifiable to mitigate pain by artificial means, how, as rational and responsible beings ought it to be done, and what means are we justified to use.

This opens up before us a field of serious thought, and one touching the interests of the dental practitioner, with much bearing, as he, in so many instances, has been a party to results most direful, and fruits to him, most bitter.

Man has ever sought to avoid pain, and it is reasonable that he will continue so to do. The excessive suffering attending surgical operations has excited inquiry as to some feasible means by which to avoid this dreaded consequence. From this cause was inspired the experimenting and final introduction of general anæsthesia. The first reliable agent of note that was introduced to the surgical world, was sulphuric ether, under the appellation of Letheon, about a quarter of a century ago. This agent did its work so well, and so exempt from fatal effects that the enthusiasm excited by the captivating eulogies of both surgeon and patient became the universal theme of praise, and at once the minds of many were turned to find something still more potent. The world had not long to wait, when chloroform was announced as the great anæsthetic catholic. It was pleasant, effective and claimed to be safe. To these two has been superadded another, namely, nitrous oxide. These three constitute the main and most reliable agents used.

It is not our present duty to examine each of these great agents of anæsthesia in detail, as there is now probably no one but that concedes that chloroform is infinitely more fatal than either the others. Had chloroform been introduced first, it is probable that from the bad effects attending its use, it would have very much lessened, if not altogether arrested the investigation further after such agents. Before chloroform was introduced, anæsthesia was rendered legitimate by common consent; there having been no discouraging results arising from

the use of sulphuric ether, and an extensive use had already been made of it. No surgeon of note was found willing to operate unless aided by anæsthesia, and the same demand came from the patients. This, we say paved the way for the introduction and general use of chloroform; one amongst the most deadly agents admitted for the purpose of annihilating sensibility under the knife.

But few of us permit ourselves to reflect upon the *modus operandi* of general anæsthesia, we seldom associate it with death, yet, if the phenomena it exhibits are not those of death in extent, they certainly are in kind. Probably metaphysical philosophy will never clearly explain *articulo mortis*. We may as well now, as has been done heretofore, regard it as the final change—meaning the entire cessation of mental and physical consciousness. This final close of life is from the inbred faculty of vitality, one looked upon more or less with feelings of the deepest awe. If this principle of love for life and consciousness did not prevail, our very existence would be hazarded. Hence the justice in placing adequate penalties upon homicide and crimes tending to destroy human life.

We observe that this estimation, placed upon human life, is high or low in a people as the grade of their culture and moral intelligence is high or low. Hence the intensity of means used by a nation to preserve life marks indirectly its high degree of intelligence and moral worth. It follows then that we regard the placing of a low estimate upon human life, as a mark of a low state of intelligence, morals, and that a people practicing this nether strata of morals is a people subject to frequent murders, suicides and all evils that follow bad legislation and imperfect laws.

That there is no class of persons exerting as much influence in shaping sentiment upon this feature of morals in communities as do physicians, surgeons and dentists, we can readily admit. Therefore, how incumbent upon us to see that nothing in our practice may thus tend to influence aught but that which is truly allied to our high and beneficent calling.

That to take life wilfully is the worst type of crime; yet,

nevertheless, to do so through wanton carelessness, or through inexcusable ignorance, exhibits a horrible infraction, and must command the severest of censure, and should not under our system of laws, go unpunished.

It is true, that among many of the usual avocations of life, fatal results often occur, such as collisions, etc., upon railways, explosions, etc., in steamboating, running away of fractious horses, etc., etc. And it may be asked, can the law interfere by prohibiting these modes of locomotion? We answer nay. These are only incidents and accidents in modes of travel, etc. where, in all ages, to accomplish the same unavoidable results, like fatal occurrences have always more or less attended, and that the mode of locomotion, etc., exempt from these casualties has never as yet been discovered. Not so with anæsthesia by chloroform. Before its introduction we had ether, and more latterly is added nitrous oxide, means fully proven to be immensely more safe.

Suppose it was known, beyond a doubt, that a certain kind of steam boiler was subject to twenty explosions to one of other kinds in use, that do equally the same service in every other way; would it be rational and moral to still continue the use of the dangerous variety? And if still this fatal variety is manufactured, and parties persist in still using it to the imminent danger and sacrifice of the lives of innocent parties, would it not be right for the authority of the law to take cognizance of it, and enforce by adequate penalties a cessation of the further use of such a destructive machine; this is a parallel case; and it becomes the more forcibly so, when we remember that the law of our land does take cognizance of these things by requiring strict inspections, records adequate qualifications of engineers, etc., etc.

Whenever in practice the action of man extends to, and effects his fellow man, said action becomes amenable to law. Man is in this country a free agent to what is right. But to do *right* will never permit him to trifle with the life or welfare of his fellow man, even though his victim invites him to do so. Men have been implored to take the life of their fellow man, but not in any instance does the law contemplate its legit-

imacy. Infraction through ignorance of law may palliate the penalty but does not satisfy law.

Men may agree mutually to fight a duel, and although but few lose their lives in this way compared to the fatality from the use of chloroform, yet laws are enacted to punish duelling, and we approve this, and pray for the strict execution of the law.

The claim that the anæsthetic use of chloroform is beneficial and fully justifies the means to the end, we cannot for a moment entertain. Some force of logic would we admit, appear in this had we not means as adequate and infinitely more safe at our command. But this we certainly have in two or more well established agents.

Staticians differ so widely in reference to the number of fatal cases occurring annually from the effects of chloroform that we are constrained to the opinion that no correct record can be had, some putting it as low as ten, while others claim its having reached as high as one hundred and ten in the United States in a single year. The first is evidently too low and the latter no doubt too high as a criterion; but it is very evident that the public records do not by any means see near all the cases. Various causes tend to the avoidance of the reports, especially is it so in general surgery; many preferring to report the case as "dying under the operation," believing it less injurious to their reputation and they being less liable to a nauseous report from the coroner's jury.

We venture the assertion that all the cases of fatality from the use of sulphuric ether during the past twenty-five years has not reached one-tenth that resulting from the use of chloroform in a single average year.

At all events it is patent to every live member in our profession, that many are the victims to this agent. That none of us are in the possession of means to prevent disaster, if we use it. That no reliable antidote or resuscitant is offered, or can be anticipated. That the most healthy and well organized constitutions seem as liable to its deadly influence as the very frail. That no compounding with other drugs, or any peculiar mode of exhibition is a security. That when fatal

results occur, the reputation of the administrator, the operator, the assistant and the profession to which they pertain, all are at the mercy of popular opinion, and more or less answerable to the courts of justice. That, indeed, from its known treachery, none are, who use it, exempt from unmeasurable blame.

These, with many more causes that might be adduced, force a conviction upon us, to the end that the only true and honorable way left for the profession in Iowa, and indeed, in the whole world, is to strictly refuse to further use this agent upon our patients for the induction of anæsthesia.

It is such questions as this, in our practice, that we, while in collective capacity, should well consider, and any errors of theory found amongst us at once set aright by a united expression of free sentiment thereupon.

Gentlemen, permit us then, to entreat of you, for the good there is in holding sacred that which is right; permit not this opportunity to pass without the placing of a united condemnation upon this dangerous practice, that will have no uncertain character.

MECHANICAL VS. OPERATIVE DENTISTRY.

BY P. T. SMITH.

Read before the Iowa State Dental Society.

Separating mechanical from operative, or medical dentistry should claim our earnest attention, as in this change we are promised a new impetus in professional advancement.

It is intended in this to only mention in brief some of the most apparent reasons why such change should be made, thus opening the subject for discussion.

To the most casual observer and thinker, the divergent characteristics of mechanical and medical dentistry are so glaring that but little tenable argument can be offered for their continued association, and a conformity to the proofs for their separation, by each, only awaits the sanction of the whole, when we shall enjoy the promises of many of our happy anticipations, in the relief from contending elements in different natures.

The more we lineate in our educational efforts the greater perfection we may attain, as the field of the dental physician proper, is ample for the most comprehensive mental powers. The plea for concentrated effort in that future line is the more potent, since its association with mechanical dentistry not only retards progress by theft of time, but stultifies by contamination. Evidence for this change is prominent in the fact that obtains in all, but perhaps more especially with the American people, to turn every moment of time and material thing possible to a financial substantiality, thus rendering mechanical, as an alliance to operative dentistry, particularly dangerous to the latter, on account of the comparatively easy manner the manipulative knowledge of the former may be gained—establishing and multiplying its votaries on every hand—from that class of young men being literary, and perhaps financial objections, on account of the facts secured to them by these particular reasons.

The professional literary standard of the members of the dental profession is regarded to-day, at not a very high elevation, and admitted by members of the kindred professions with a spirit of interdiction, on account of our trammelled position by the overwhelming influence of the mechanical association and its inevitable tendencies.

A young man without much literary preparation may enter—as many do—the laboratory of some “dental surgeon” and acquire in six months time, a sufficient knowledge of the the business to pass himself acceptably with the people, fully meeting their expectations or satisfying their limited ideas of what a dentist should be.

Able to extract teeth, make new sets on some disagreeable substance, and occasionally stuff one with amalgam, the mechanical part of the business being the great beacon light of dental perfection held up to view—to allure the victims on to destruction and death, making the way clear to the wiry practitioner to set up porcelain tomb stones to mark the place of the sacred and lamented organs so ruthlessly sacrificed and torn from their attachments in physical economy. All on account of ignorance and love of money.

Educate the dental student to treat diseases and save the human teeth, encourage him to do what he can to prevent disease, and by his efforts and influence, the people will fast become acquainted with their first duties, and no longer be subject to that charlatanic influence that to-day sees first of all, and encourages their credulous victims to compliance in the ruthless slaughter of their teeth in the furtherance of their insatiate money greed.

Give us the change. Let us become, as the necessities require, purely professional, and we have nothing in our way to that coveted recognition that we now hardly dare claim to merit. Also we relieve ourselves in the speediest and most effectual way of the annoyances the Legislature has so often refused to interfere in.

It will give us renewed strength and ability in the channels of most importance to our patients—that is teaching to them hygienic laws and their obedience to them, as a means of better health and teeth; to us, better success in our efforts, better prices and better feelings among men of the profession.

I would cast no reflection upon the usefulness and honor of mechanical efforts and the unfortunate necessities of the mechanical dentist but would encourage a position for such as may enjoy what that department in its properly circumscribed arena may offer. Such a place as will afford its votaries no opportunity of enlarging their work by the destruction of sacred organs that in the hands of the learned and skilled could be saved and continued in their office of vital perpetuity.

DOES PAST EXPERIENCE JUSTIFY CONTINUED USE OF COHESIVE GOLD.

BY A. O. RAWLS, D. D. S.

Read before Kentucky State Association.

It is evidently as true of cohesive foil as with other materials for filling teeth, that it has met approval very much in proportion to the amount of honest investigation of its qualities, or accordingly as its merits are viewed with an eye to success in this or that direction. Thus while the observations of some have led them to deprecate, and condemn its use for the reason that as a standard filling in a certain class of cavities it had not equaled their expectations. Others have been pleased to accord it merit and encourage its use from the fact that in their practice and that of their co-laborers, they have been able to see much good result, aside from the foregoing or any special view of its applications. And in presenting this subject for your consideration I wish not to be understood as favoring its claims for any single virtue it may possess, but rather for the reason of its usefulness in general, for its adaptation to every class of work wherein other forms of gold are used for filling teeth, and also because of the most excellent effects of its introduction on the practice of operative dentistry throughout. Should the question be asked has cohesive foil under all circumstances, in the hands of those attempting its use, proved of good effect, I would certainly answer in the negative, but the question as it is referred to this society for consideration, I am fully persuaded that my reply should be in the affirmative, indeed, did I not thus respond, and that with as good grace as ever man wedged a cylinder of non-cohesive gold, I would surely be recreant to the cause I willingly espouse. In noting the various changes wrought from time to time in the development of science or art, in political and social government or, in fact, in all the many progressive systems of the world's history, there is no feature more prominent in a radical revolution of any of these systems, than

that of determined opposition to its accomplishment, a reluctance to giving up old things for fear that in accepting the new failure may result. And though it may be truly said of opposition that as a rule it exerts a healthful influence on the progressive development of our interests, yet it is of equal truth that there comes a time when this ultra spirit of antagonism would be very much out of place, except wherein it opposed real and not imaginary discrepancies. The growth of cohesive foil to its present status in dentistry, has not been without a struggle.

In the hands of not a few it has proved intractable, and of very uncertain merit, while in the practice of many in fact in the main, when it has been employed with the same determination to succeed that has characterized skillful hands in the use of non-cohesive gold, it has not only established a value equal to the best, but in very many cases has surpassed in necessary requirements every form of material, designed for filling teeth.

As in the consideration of a statement we may err in our judgment, unless the mind is brought to bear on the subject matter comparatively free from existing predilections, so also we may fail to secure many things of benefit in the discussion of a subject unless we can for a time freely lay aside our prejudices and be ready to receive the truth when established. And now let us inquire as to what should constitute our aim in filling teeth. This may appear a very simple inquiry, and yet, judging from the different ideas entertained on the subject of success, as it pertains to filling teeth, we are constrained to make the same. We are aware that in this as in any good undertaking our aim should be success, nevertheless this answer, if given from different standpoints, may or may not be correct, true success can not be attained in this direction without there be an appropriate estimation as to the requirements, and probable results of an operation. For instance, when we see fillings that have been in the teeth for several years, we are wont to say of them they are successful operations, and usually in this our judgment is predicted on the fact of said fillings being in situ, preventing further decay in their

respective places, and indeed presenting an appearance much the same as when first placed there. But to pass judgment thus on all such fillings as have retained their integrity for considerable time, disregarding other, and just as essential requisites to success, would evidently be looking at the case from an incorrect standpoint. In our efforts to perfect the art of filling teeth, it is clearly of importance, that our aim should be not only to so complete the work that there may be favorable chances for its retention, but also in a manner that will undoubtedly seem to the patient the most effective results, as to use and comfort. We recognize, in not a few cases coming to our notice, the many annoying difficulties tending to prevent successful consummation of our labor, and yet we verily believe that some of these difficulties might be overcome did our profession possess more skill in the manipulation of all material, and appliances, now extant for the purpose.

Touching the filling of teeth such as in their preparation require no material destruction of their general contour, it matters not, or but little, whether we use cohesive or non-cohesive gold, so it be good of its kind, and fitly applied, but in order that we may thoroughly understand and appreciate the merits of different substances or different forms of the same material for replacing broken down tooth structure, we should by all means subject them to tests wherein all things else would be equal, not merely in ordinary cavities of decay nor in teeth, the structure of which exhibited more favorable characteristics in behalf of one than of the other material, but also in cases most complex, as they refer to size of the cavity, difficulty of reaching the same, constitution, temperament and peculiar idiosyncrasies of the patient. In fact the existence of anything which might in any respect have bearing on the results of such operations should be duly considered.

It would doubtless be well to make the application of these comparative tests more especially to the latter class of cavities, since to this complex variety our failures are mostly ascribed. We are happily possessed of ample material and means for producing successful results in the former, ordinary class of fillings, but to make the most of desperate cases is often

truly perplexing, in consequence of which they really deserve more special attention; indeed if we would be a progressive profession our labor must of necessity lead us away from things of easy accomplishment and into the more abstruse problems of our calling. To lay aside however, the probability of any tests being made, under conditions above mentioned and to consult the experience of very many of our best operators, who have in the use of cohesive foil made it a thorough study, and its application to this class of work worthy their best efforts, we verily believe that deductions from a past comparison of such experience with similar experience in the employment of any other form of gold, would without doubt greatly favor the superiority of cohesive gold.

It is a matter of no little surprise that men who pretend to seek the truth, urge so many objections against the use of a material, the nature of which they have never yet cared to ascertain, and as objections often tend to confirm the truth, we trust that in vindication of our position we may be granted the right of mentioning a few of the more prominent ones.

Among the first objections greeting our ears was difficulty in manipulating cohesive gold on account of its tendency to roll up or clog under the instrument, which to some extent was true at the time it was first urged, but to use that in argument against it to-day would, to say the least, be severely absurd. Parsimonious investigators for a time grew exceedingly wroth and regreted very much that it required such waste of material. Also it has been urged that this class of work would not stand. If this be true then indeed will the labor of no inconsiderable number of our best operators have been in vain, but its continual use and the fact that such work has stood well from the time its peculiarities were understood is a sufficient guarantee of its virtues in that direction, and really a positive denial of the foregoing objection.

Again it has been said that it could not be adapted as perfectly to the walls of a cavity as could non-cohesive gold, and among the reasons given why this could not be done was that of its non elasticity. Now let us see wherein elasticity would be of benefit, or if you please the philosophy of an

elastic property, as it would enhance the merits of any material for filling teeth. To accept a common sense view of the matter, the only philosophic reason which could be urged favoring the elastic property of gold as a filling, would be that of its tendency after compression to spring out from center to circumference, to adapt itself to the walls of a cavity more completely than could the force ordinarily used for that purpose. If it be true of any kind of gold in use, that it has sufficient elasticity to reclaim its position upon removal of the force which displaced it, then the aforesaid reason might be relevant. If not, however, then the elastic condition, if such existed, of the material would under pressure used for its adaptation speedily resolve itself into that of a passive nature in the which, so far as placing it in contact with the walls of the cavity is concerned, would be of no more benefit than lead or any non-elastic substance. In a word this property would virtually be of no avail when destroyed by the force of its application.

Another objection, and one which should have been accredited to the operator rather than, as it has been, to the peculiarities of the gold, is that in making additions, piece by piece and malleting each successive particle there existed a continual disturbing of the mass beneath, a tendency to displace the adaptation of preceeding portions of the fillings. This only holds good with the proviso that its reference be to the exception and not the rule, to a lack of skillful manipulation or an oversight in securing proper anchorage, rather than to the supposed impossibility of the latter. In truth if cohesive gold be used with an appropriate appreciation of its peculiarities, a thorough knowledge of how it should be used and with instruments best suited to the work, all disturbance of its particles will be as clearly in the right direction as would block or cylinder of non-cohesive foil under the hands of an operator skilled in its use.

To the objections that it consumes too much time to properly complete an operation after this method and that it is of such necessary importance that the cavity, gold and instruments be absolutely dry. We will of the former contend

that the difference of time requisite in the use of the one or other form of gold, when applied to ordinary sized cavities is of but little or no concern. While for larger fillings it may, perhaps does, take more time, but in as much as it does we hope to arrive at better results and to have corresponding increase of benefit, accrue to the recipients of our labor.

To the latter of the foregoing objections, we can not do better, in order that we may refute the fallacy of such argument, than to solicit a consideration of the reasons why the arrest of decay is accomplished by excavating and filling perfectly the decayed cavity. Further comment we deem unnecessary.

Much also has been said in condemnation of this practice for the supposed reason that it was necessary to so shape the work as to present more gold to view than would be the case with non-cohesive gold. To accept this however as it is usually applied, would certainly be of doubtful policy, for it is a statement void of plausible grounds of defence. All ordinary work of this character can be as completely hidden from view and with as much ease of effort as can similar work by any means resorted to. Though if such complaints be referred to that class of fillings usually styled contour and especially when they are large and situated in the anterior teeth. Then anything said pro or con on the subject would of necessity lead us into a consideration of the merits or demerits of contour filling, in general, which is a subject in itself, and had better be discussed under that particular head.

I have made mention of the fact that since the introduction of cohesive gold it had proved of excellent effect on the practice of operative dentistry in general, and in making such statement I was not influenced alone by a knowledge of its merits as a material for filling teeth, but aside from this consideration, it was my desire to refer more especially to the fact that its introduction had given an impetus to varied interests of the profession, in the which very much of benefit had fallen to ourselves and our patients.

Very soon after its introduction, the necessity for

a complete freedom from moisture in its manipulation, was ascertained, and not many year's thereafter our profession was greeted with one of the grandest, most useful auxiliaries to operative dentistry ever presented, Barnum's Rubber Dam.

Many appliances and attachments to various kinds of dental burring engines have been called into existence, purely as the result of demands coming from the use of cohesive gold. The improvement if not origin of gold screws as a means for better securing fillings of a certain class is surely one of the valuable outgrowths of this practice, and although these improvements have been and are now of such value to that practice which has brought them into use, it does not follow that they are of no account to those employing cohesive gold in their practice, but on the contrary, there is not a single one of these but what can be made to serve a good purpose, no matter what the mode of operating. It has been the means of arousing the latent energies of its numerous devotees, and stimulating into renewed action, those who so fondly clung to the old regime. Before its use there existed but one form of recognized standard work; consequently not so much apparent necessity for emulative spirit, but from the moment cohesive gold began to contend with non-cohesive for supremacy, the efforts on the part of the faithful in behalf of their respective modes of practice has been redoubled with a view that smacked of future good, and I firmly believe as a result, we are approaching true success, though by different routes, nevertheless just as surely.

The extremes have been reached, many things which were of doubtful practice, have gone into disuse and I trust we are rapidly and gracefully leveling up and leveling down and may ere long reach the always sought for, golden mean.

TREATMENT OF CHRONIC ALVEOLAR ABSCESS.

BY F. PEABODY, D. D. S.

Perhaps there is no disease which the dental practitioner is called upon more often to treat, which is more interesting in its character and which is often more perplexing than chronic alveolar abscess. I do not intend in this short paper to enter into a discussion of the pathology of this trouble, or the causes of its obstinate endurance which often combats all our efforts at pacification. Nor of the effect it has upon the general organism and the dental organs in particular. Each operator probably has his favorite method of treatment, often attended with success and as often with failures of a most disheartening character.

The object of this paper is to call attention more particularly to a class of fistula of the alveolæ of an indolent character, perhaps as properly denominated sick teeth, and to a method of treatment which has been attended with unexpected and gratifying results. The intelligent and honest dental operator makes it his aim, first, to eradicate the disease, next, to so learn the tooth and its surrounding parts, that there will be no probable chance of its return. In order to do this, after the favorite application has been made to the abscess, the object is to fully and thoroughly fill the root, so that no fiber of nerve shall remain to generate gas and no receptacle shall be left to form a nucleus for the regeneration of the trouble. It is doubtful if many reflect on what action the material used for the root filling may have on the surrounding tissues, the principal object being to obtain something that shall thoroughly fill the space occupied by the nerve, and shall at the same time be indestructible. Cotton, asbestos, gutta serena, gold, os-artificial, flax and silk, each have their defenders and adherents, and many other articles which have been successful in some cases have been lauded by those who have experienced success in their use.

I am now about to call the attention of the association to a material which I have been using for a little more than two years, and which in no case has refused to fulfill the requirements desired and expected. I doubt if I can better do this than by citing a few cases from my register. I do not claim that the material will always and under all circumstances perform a cure, I merely state what it has done for me.

May, 1873, W. H. D., presented himself with an abscess over the left superior canine tooth, arising from the approximate lateral. This tooth had been filled about two years before and in a few months an abscess had appeared and broken at a point over the apex. I had nearly twelve months before treated this abscess and thought I had cured it, but it soon returned pointing over the canine tooth, I treated it again, but all ordinary means failed. I then cut down over the apex of the lateral, removed the alveolus, and tried with an instrument to break up and tear away the sack, the operation was quite painful and resulted in no good. For eight months I worked on this persistently, using every means in my power to subdue its belligerent aspect. I at length concluded there must be some necrosis of the process or absorption of the root which kept up the irritation and the flow of pus, and determined to extract the tooth, excise the point of the root, polish, fill and replace. The gentleman intended the next day to leave the city for a week or two, requested me to defer the operation until he returned. Wishing to strengthen the root, that it might not break in extracting and as much as possible keep it cool, I filled thoroughly with a piece of lead wire and dismissed him.

On his return at the end of two weeks, I was astonished at finding the fistula absent, the gums perfectly cured and to all appearances in a healthful condition. I concluded not to extract, but to watch the case. In the same mouth was a bicuspid root, second, right superior, on which I wished to set an artificial crown, an abscess on the root had defied all my efforts to control it. On enlarging the canals to receive the gold intended to support the crown, I found each root had perforated the floor of the antrum, and a discharge of pus and sanies

followed, on the removal of the instrument, the flow was profuse and no injection was of any benefit. I thought best to remove the root, but by way of experiment filled both roots with lead wire and dismissed the patient for a week. At the end of that time the abscess was gone, the root which was before quite loose was now firm, and the gums were free from inflammation and apparently healthful. I removed a portion of the lead filling and set an artificial crown on root, this root by strain was afterwards split, rendering the crown useless, but up to the present time both lateral incisor and bicuspid root remain free from inflammation, the parts are apparently sound, and no return of the abscess has followed.

Mrs. H. came with a right central incisor which had been in a chronic state of inflammation for over two years. Her dentist had during this time been treating it, had filled the root and tooth three times, and as often removed the fillings on account of pain. No external fistula was present. The crown was a mere shell, had been excavated until nothing but the enamel was left, tooth sore to the touch, gums in an exalted state of inflammation. It was a very doubtful case, did not feel inclined to take it, promised nothing, but being requested to try, treated for a week, subdued the inflammation, filled the root with lead wire, the pulp cavity with oxychloride of zinc and the crown with gold. No trouble has occurred up to the present time. Every time her husband meets me he thanks me for my cure and success in saving this tooth for his wife. I could enumerate many other cases of a like nature, some even worse, presenting no inviting appearance. In no case since I have used the lead filling for the roots, have I failed in curing these indolent cases of chronic fistula. I say cured—for to all appearance they are cured, they may return but some of the worst have stood the test for over two years, which, I trust, is an indication of their future good behavior. What the rationale of this treatment is, I am not prepared to say. Whether it is the perfect filling of the root, particularly the apex, or whether there is some hidden therapeutic property in the lead, I leave for others to say, I merely state facts and results. It is well

known that the human system tolerates with more kindness the presence of lead, than any other metal; but as other materials seem to fulfill all the requirements of a perfect root filling, as far as indestructibility and thoroughness are concerned, it seems to me there must be something more than these facts connected with the results produced by lead.

I can find in no authority, any satisfactory explanation of this or any therapeutic property, that lead in its crude metallic state possesses, save its coolness and the possibility that the portion of the metal exposed at the foramen may be slightly decomposed by the fluids that bathe the apex of the root, forming some salt, the astringent property of which may tend to change the action of the disease to one that nature of itself will control. In that case some of the salts of lead would probably produce the same result, those I have not tried and do not know what their effect would be.

In conclusion I will state my method of procedure. Cutting off a strip of common lead from a water pipe, or from sheet lead, I draw it into wire of different sizes. Cutting this into lengths of half an inch, on a glass slab with a spatula, I roll one end to a cone with a sharp point, having ascertained with a few fibres of cotton wound on a broach the size of the foramen, I cut off the sharp point of the cone to about the same size, then, dipping in creosote, the wire is introduced into the canal and carried with force to the apex; unless the foramen is large, the metal being so yeilding, there is little danger of its being carried through, and even in large openings where the end of the cone is regulated to the size of the foramen, with due care, such an occurrence is not liable, piece after piece is introduced and forced up into the canal until all the space occupied by the nerve is filled. The filling thus made is a very perfect one and I find the material easier to handle than any other I know of. Small and tortuous canals are more difficult to fill and require more care.

To some, this method may not be new. To some, the idea may be of benefit. I have written this very hurriedly, at a day's notice and present it to the association for what it may be worth, trusting it may be tried faithfully by those who have

“sick teeth” to contend with, where other remedies have failed, and that they may find their success as gratifying, as I have, in their efforts to overcome this perplexing disease.

PHYSIOLOGY.

BY W. H. JACKSON.

Read before the Mich. State Dental Association.

Physiology treats of the laws of life, and the functions of living beings.

Dalton Says, “These peculiar phenomena, by which we so readily distinguish living organisms from inanimate substances, are called vital phenomena, or the phenomena of life.”

In order to understand the laws of life, there must be a thorough investigation of all its phenomena; for through the knowledge of the phenomena only are we to discover and come to an understanding of the law; hence we can not make or set up our own ideas as laws regardless of phenomena; if we do we only erect them to be torn away as soon as erected.

To observe phenomena requires an accurate knowledge of anatomy, histology and chemistry.

The human system is composed of numerous organs; each of which performs its own peculiar action or office. This is function.

Scientific men, until recently, stopped here; considering that it was sufficient to understand the number of different organs, their action and the product of their action.

A few restless spirits, which we call workers, not feeling satisfied, have gone deeper, opening up a world of study in the more minute structures of the different organs and tissues

of the body. This is histology. Histology and physiology go hand in hand, as one foot aids the other in locomotion.

The microscope has been the stimulator toward this minute investigation, and the revelation which it makes in what we might almost call the atomic world, is truly wonderful ; without its revealing powers I should be unable to bring the few remarks I have to make before you ; and through its revelation we find that the living human organism, which we see moving about, is not an unit of life, but a multitude of infinitely small units ; some just springing into life, some in youth, others in the full vigor and strength of middle age, while still others are ready to die and be cast aside, like the beautiful autumn leaves that lie scattered on every side, giving evidence of their former glory, yet soon to be obliterated, leaving no trace of their previous existence.

Each class of units has its own function to perform, and differs from that of every other in accordance with the tissue it has to build up. One class builds muscle, another cartilage and so on through all the different tissues of the body.

That which is now known as an unit of life, is termed a cell, by this we understand that there is "living or germinal matter, with formed material upon its surface." It is to this cell life I wish to call your attention. "The living or germinal matter is a jelly-like substance, possessing within itself the power of motion, while formed material has not that power and is passive. To be sure formed material, is governed by certain laws and acts in accordance with the action of certain forces which may be brought to bear upon it. This formed material is tissue.

"There are three things necessary to the production of tissue. First, living matter ; second, formed material ; third, pabulum. All tissue has been of the non-living pabulum, then is taken up and is a part of the living or germinal matter and thrown out as formed material. This formed material having none of the characteristics of the pabulum or the germinal matter which formed it, "it has a character and form peculiar to itself, which has been stamped upon it by the parent builder, the living or germinal matter.

The function of the cell is to build tissue and reproduce cells that shall fill its place when it is no longer able to perform its functions.

The cells that build dentine are called odontoblasts; they first form a thin layer of dentine on the inner surface of the connective tissue between the organ which builds dentine and the organ which builds enamel. The dentification commences at the apex of the cusps; for the incisors and cuspids, one center each; bicuspid, one to two centers each; molars, three to four centers each.

The odontoblasts as fast as they form dentine, recede toward the pulp, that is toward where the pulp cavity is to be formed, small filaments reaching back to the original starting point, forming the dental tubuli.

The enamel cells cover the outer surface of the connective tissue, and begin to deposit the enamel soon after the layer of dentine has commenced to be formed on the inner surface of the tissue, they commence to build at the highest point of the cusps radiating from that point. Where there is more than one center they spread until they come in contact, the points of contact form what are known as fissures in the crowns of the teeth. All of this hard enamel substance is taken up from the pabulum by the living matter in these little enamel cells; so these little masses of germinal matter build the hard hexagonal rods that vie with the crystal for beauty, sometimes wearing for nearly a century to grace the mouth of the wearer, and in performing their functions fully give tone to the general system, in as much as the food is masticated properly, not overtaxing the stomach, but allowing it to perform its work with ease.

Cells reproduce cells after their own kind; that is, after the type of the parent cell. A muscle cell will reproduce a muscle cell, yet some claim that a muscle cell under different surroundings will produce other tissue or the pus corpuscle, but this is contrary to the good orthodox doctrine that "every thing shall bear seed after its kind." No one will deny however, that different surroundings will not make a difference in the development of the cell, the same as the difference be-

tween a well or ill fed animal or a human being in sickness or in health.

The reproduction of cells is accomplished in several different ways. "First, (Beale L. S. and M. and M. 45.) in many masses of germinal matter, a smaller spherical portion, often appearing a mere point is observed, in some cases this divides before the division of the parent mass takes place. This however, is not necessary to the process, for division takes place in cases in which no such bodies are seen. These are to be regarded as new centers, composed of living matter. Within these a second series is sometimes produced. The first have been called nuclei, and those within them, nucleoli." Some regard these bodies as the only agents of reproduction, this however is not true. This living matter like many other organisms reproduces its kind, not only by germinating and producing seeds or germs; but by throwing out what might be termed runners, and when these runners are sufficiently strong to sustain their own life without the aid of the parent, the connection between them and the parent germinal matter is severed; then they become separate living cells capable of reproducing their kind, and fulfilling all the functions of the parent cell.

The reproduction of cells is far more rapid in the young and fast growing. The rapidity of reproduction diminishes as age advances. The rapidity of reproduction depends also upon the surroundings, such as variations of temperature from one extreme to another; the material of which the pabulum is formed; the presence of malarial poisons or contagious disease germs. In inflammation and fever (according to Beale) there seems to be an excessive development and reproduction of germinal matter.

It is claimed by some that the excessive development of the germinal matter is the cause of diseases, yet it seems far more probable, that it is owing to the state of the pabulum, the presence of poisons or the presence of germs of contagion. In illustration of the first, (excessive development in inflammation and fevers) if when we are in profuse perspiration, we become suddenly chilled, it may throw the system into vio-

lent inflammation or fever, it is said that it is caused by closing the pores of the skin, but it seems far more probable that the germinal matter in the cells which line the perspiratory glands which separates or extracts the poisonous gasses or fluids from the blood have ceased to act, and perhaps a large portion of the germinal matter has died altogether from the extreme change of temperature; this takes away the means of eliminating the poisons. The retention of these poisons in the system seems to destroy the action or function of the germinal matter which is to build up tissue; hence we observe a rapid wasting away of the body. This retention also seems to have the effect, (from the previous reference I made to Beale) of increasing the reproductive powers of the germinal matter of the tissues of the body; but whether it is the reproduction of the germinal matter of the tissues of the body or the germinal matter of organisms foreign to the tissues in which they are found, may be questioned. It is well known that there are myriads of germs floating in the pabulum which have penetrated into every portion of the human system, only waiting for the proper condition of the surroundings to bring the germ into living germinal matter, and, from what little observation I have had, it seems that all they want is that a portion of the tissues or body be brought to the putrefactive stage, when they quickly assume the living form, thereby furthering the process of decomposition, by which, the process of elimination from the system is hastened.

In inflammation of the periosteum dentium we have a similar occurrence. First, there is an injury of the periosteal tissue; it may be mechanical, or it may arise from the action of poisonous gasses or fluids which come from putrefying substances in the pulp chamber; the injury causing death of a portion of the germinal matter at the apex of the root. As soon as death occurs, it immediately assumes the putrefactive stage and the development of the germs of the pus corpuscle, which seems to be present in nearly all animal tissue, follows.

Within certain bounds the reproduction of germinal matter may go, either above or below the normal standard without

material injury to the system, but carry it to either extreme the result is disease.

Different medicines have different effects on the reproduction of germinal matter, those classed under the head of tonics have the property of hardening tissue and making it less permeable to the fluids. They also have an antiseptic property as has also carbolic acid, wood creosote, chloride of zinc, tannin, alcohol, etc., hence the benefit we derive from their use in treating ulcerated teeth and other diseases of the associate tissues.

To increase the reproduction of germinal matter, when below the normal standard (Beale says) "potash, soda, lithia and their carbonates, as well as the salts of many vegetable acids which become converted into carbonates in the system act beneficially in this way as well as by producing favorable changes of other kinds.

It may seem that much I have said has nothing to do with dental physiology, yet upon the physiological condition of the cell, life either ascends or descends in the scale of health; and until we can understand or know the normal condition of the cell, and the action of different remedies upon it to restore it to its normal condition we have not obtained that standard of medical education which should be the desire of every student of the profession.

Proceedings of Societies.

IOWA STATE DENTAL SOCIETY.

The thirteenth annual meeting of the Iowa State Dental Society, convened in Cedar Rapids, at the Avenue Club Room, Merchant's Block, May 11th, 1875.

Dr. J. T. Abbott, of Manchester, Vice-President of the Society, called the meeting to order, and Dr. R. L. Cochran, of Burlington, was chosen temporary Secretary.

On motion of Dr. P. T. Smith, of Burlington, a committee of three was appointed to examine new applicants for membership. The committee consisted of Drs. P. T. Smith, of Burlington, C. P. Artman, of Waterloo, and J. Hardman, of Muscatine.

The following were in attendance.

Dr. J. T. Abbott, Manchester.

" P. T. Smith, Burlington.

" J. Hardman, Muscatine.

" W. H. Walker, West Branch.

" W. H. Thrift, Eldora.

" E. R. Mullet, Clinton.

" T. A. Hallett, Des Moines.

" G. W. Fuller, Des Moines.

" C. P. Artman, Waterloo.

" T. D. Sturdevant, Clarence.

" G. S. Shattock, Belle Plaine.

" L. C. Ingersol, Keokuk.

" John. M. Booth, Marion.

" A. R. Begun, Cedar Falls.

" Gust North, Springville.

" L. J. Walter, Cedar Rapids.

" J. L. Nott, Marion.

" A. B. Dennis, Muscatine.

" J. L. James, Fairfield.

" A. O. Hunt, McGregor.

" James Thompson, Sigourney.

" C. H. Sterneman, Cedar Rapids.

The Society then adjourned until 2 o'clock p. m.

AFTERNOON SESSION.

The meeting assembled at three o'clock, and President Abbott announced that the President had arrived and Drs. Wilson and Hanks were appointed to conduct Dr. R. S. Rathbone, the President of the Society, to the chair.

Dr. Rathbone, on taking the chair, made a few appropriate remarks, and said they were ready for business.

Dr. Tulloss made a verbal report on the subject of Dental Education.

Dr. Ingersoll gave an interesting statement in regard to this subject in Michigan, and also stated what had been done in Iowa. The regents of the University were in favor of a Dental Department in the University, and he thought that something might be accomplished if the Legislature could be controlled.

Dr. Hardman favored such an arrangement as should fully qualify the young men of the state for the practice of the profession of dentistry, and preferred to stay out in the cold to accepting a single chair in the University.

Dr. Abbott favored the position of Dr. Hardman. He thought it better to work and wait until the whole loaf could be secured. He thought it more difficult to get increased appropriations in the Legislature, than to secure an adequate appropriation by proper work in advance of legislative action.

Dr. Ingersoll favored a small appropriation to establish a chair of Dentistry even before a Dental Department could be secured.

The further discussion was postponed until to-morrow.

The following new members were then admitted.

Dr. J. M. Booth, Marion,

" O. O. Hunt, McGregor

Dr. H. W. Blockly, Centerville.

“ A. D. Dennis, Muscatine.

“ E. D. Andrews, Ames.

The following were elected junior members.

Dr. J. H. Nott, Marion.

“ T. L. James, Fairfield.

“ J. Thompson, Sigourney.

Burlington was designated as the next place of meeting.

On motion of Dr. Ingersoll moved to adjourn until 7:30 this evening.

NIGHT SESSION, 8 O'CLOCK.

Dr. Hardman in the Chair.

The Committee on Membership reported the following, who were duly elected members:

Dr. A. R. Begun, Cedar Falls.

“ S. L. Young, Dubuque.

“ W. H. Walker, West Branch, junior member.

H. D. Dodge, Dubuque.

Dr. Artman introduced the subject of celluloid for plates.

Dr. Hanks wished to inquire if there was any way of mending the plate when broken.

Dr. Cochran explained a process by which he had succeeded in mending the plate perfectly.

Dr. Wilson thought the camphor taste remained, and only disappeared by not being noticed.

Dr. Booth had used celluloid two years with good success.

Dr. Eaton related a case where the plate had become loose after wearing for a few days but was not able to explain the cause.

Dr. Andruss had mended a plate which had remained for six months, and had not been returned to him.

Dr. Ingersoll never uses a file which produces a surface too smooth. He strives to keep the appearance true to nature. He carves the gum with a knife by which he is able to make it true to nature. His plates have not come back to him, and could not answer the question whether they became discolored. If it does discolor it destroys the charm of its use.

Dr. A. Begun gave his method of using the scraps of celluloid base. He had used them in making full plates, with satisfactory results. He used the steam apparatus.

Dr. Artman gave an amusing experience in the use of celluloid and thought it must have very close attention.

Dr. Smith thought the porosity was caused by over heating. He did not think it caused by a want of pressure ; but rather by the escape of gasses generated by too high heat.

Dr. Morgan said that with the use of steam he had no porous plates. They became porous because of excessive heat. He regarded it a better material than rubber.

On motion of Dr. Shattuck, adjourned to 8:30 o'clock tomorrow morning.

2D. DAY, AFTERNOON SESSION, ELECTION OF OFFICERS.

The Society then proceeded to the election of officers for the ensuing year, with the following result.

President—C. P. Artman, Waterloo.

Vice-President—P. T. Smith, Burlington.

Secretary and Treasurer—R. L. Cochran, Burlington.

Corresponding Secretary—I. P. Wilson, Burlington.

Dr. Hardman then called up his Resolution on chloroform and read several extracts, showing the action of other agents condemning the use of chloroform as an anæsthetic agent.

Dr. Walter had used chloroform since its first introduction but had determined to discountenance it.

Dr. Lyon, of Cedar Rapids, gave an interesting case of the use of chloroform and gave it as his opinion that it was giving way to the use of ether. He had been forced to the use of chloroform where ether had failed.

Dr. North, of Cedar Rapids, was also a friend of ether. He had assisted in administering ether and kept the patient under the influence for several hours.

Dr. Hardman thought a small amount of chloroform would kill. If the patient would endure it for a short time he would not regard it dangerous to continue.

Dr. Rigby thought the use of chloroform dangerous and would discourage its use among ignorant practitioners.

Aug-3

Dr. Tulloss was opposed to the resolution and thought we should use everything we can to relieve pain. He considered ether the safer remedy.

Dr. Cochran, of Burlington; Dr. Artman, of Waterloo; Dr. Morgan, of Davenport; Dr. Thrift, of Eldora; and Dr. Abbott, of Manchester, continued the discussion at some length.

Dr. Rigby offered the following as a substitute for Dr. Hardman's resolution:

Resolved—That we, as a Society, condemn the use of chloroform as an anæsthetic agent in all dental operations, and that we refrain from using it so far as possible in our practice.

The discussion was further continued by Drs. Cochran, Fuller, Walter, Sternemen, Tulloss and Rigby.

The substitute was then adopted.

Dr. E. R. Mullett presented an essay entitled Clippings, by Dr. E. J. Mullett, of Clinton.

This was a suggestive essay on various topics of practical dentistry. Among these were the following: Taking impressions for partial upper sets; vacancies between the teeth and plate; the use of carbonized paper for articulating a set of teeth; capping nerves, etc. The copy of this paper is so badly interlined that we are unable to present it entire. It contained many valuable suggestions and we regret our inability to place it before our readers.

CAPPING EXPOSED NERVES.

Dr. Cochran, of Burlington, gave his method of treating exposed nerves and read a number of letters from eminent practitioners both in opposition to and in accord with his method of treatment.

Dr. Morgan agreed in the main with Dr. Cochran, though he used no chloroform to quiet the pain. Acetate of morphia and creosote were used instead. He never killed the nerve.

Dr. Ingersoll related a case of a diseased tooth, removed from his own mouth, filled and returned.

Dr. Fuller also narrated the case of a transplanted tooth which was successful.

Meeting adjourned until 2 o'clock p. m.

AFTERNOON SESSION.

Pres. Rathbun in the chair; minutes read and approved.

Dental Students. Whom shall we take and whom refuse.

Dr. Thrift of Eldora, thought the classical culture of the applicant should be considered, and also their natural adaptability to the work.

Dr. Tulloss, would have the student thoroughly prepared by previous education. The dental profession is advancing.

Dr. Abbott was called to the chair, and the President proceeded to address the Society. Higher qualifications are required to-day than was the case a few years ago. We must eradicate the idea that young men can learn dentistry in a few months of practice, They must be educated and thus we may hope to elevate the standing of the dental profession.

Dr. North coincided with the views expressed by President Rathbun.

Dr. Abbott, of Manchester, said we should examine the natural ability of the applicant, and he would also insist on full scientific attainments. We should lend our influence to encourage the study of physiology and anatomy in our schools. He thought some regulations should be adopted to secure more thorough preparation on the part of students of dentistry.

MISCELLANEOUS.

Dr. Hunt, of McGregor, spoke at some length on the filling of so called ulcerated teeth.

This subject was further discussed by Dr. Shattuck, of Belle Plain, and Dr. Morgan, of Davenport.

Dr. Abbott narrated several cases of office practice, full of amusement and interest.

REVISED CONSTITUTION.

Dr. Wilson, from the committee to revise the constitution of the society made a report, which was accepted.

On motion of Dr. Abbott, the constitution was taken up article by article for approval.

On motion, the constitution, by-laws and order of business were approved as a whole.

On motion of Dr. Hunt, the adoption of the constitution etc., be made the special order of business to follow the roll call of the next meeting.

The President then announced the following standing committees:

Executive committee—Drs. Ingersoll, Morgan and Kulp.

Examining committee—Drs. Abbott, Shattuck and Walter.

Publishing committee—Drs. Dickenson, Hanks and Fuller.

The Bill of the chairman of the executive committee was presented and approved.

On motion of Dr. Wilson, Dr. Walter was authorized to draw on the treasurer for the amount necessary to defray the expenses of printing in the Cedar Rapids Republican.

Proceedings read and approved.

Adjourned.

MINUTES AND DISCUSSIONS BEFORE THE EASTERN INDIANA DENTAL ASSOCIATION.

The first session of the Eastern Indiana Dental Association convened at the rooms of the Y. M. C. A., and was called to order by the President at 2 p. m., with the following members present: Drs. Jamison, Stanley, Ellis, Shelby, White, Chappell, C. S. Wilson, W. N. Wilson, Bushong and Wagoner.

Drs Stanley, Ellis and Chappell were appointed as a board of censors, and reported favorably upon the following names, who were elected as members of the Association: Drs. J. W.

Jay, of Richmond; Welb Hays, of Rushville; and C. B. Riggs of Manilla.

Drs. J. L. Braffutt, L. B. Taylor and Boyd were elected as honorary members.

The first order of business was called and passed on account of the absence of the Essayist. "Idiosyncrasies of the patient to be considered as to the failure or success in filling teeth" was then taken up, and quite a discussion ensued, participated in by Drs. Chappell, Stanley, White, Braffutt, Jay, Ellis and Jamison, in which these facts, among many others were set forth, that it was very important that the confidence of the patient should, if possible, be secured and their timidity overcome before attempting to operate.

Under the 3d order of business, Dr. Jay presented a paper on Alveolar Abscess and its treatment, offering several cases in practice of much interest, and was followed by Dr. Chappell with an instructive essay upon the "Treatment of dental pulps and pulpless teeth," both essays eliciting interesting discussions.

"Sensitive Dentine and Pain Obtunder" was next considered, in which the latter in a general way was condemned, its application being attended with variable results. Dr. Jay reported having used arsenic in small quantities with good results in sensitive dentine.

Subject, Mechanical Dentistry. Dr. Jay remarked that in his vicinity much was done in the way of cheap artificial teeth. They are constantly being palmed off upon the people, as good work, and such work is constantly referred to by the people, as much cheaper than some dentists will work. This is a very serious difficulty with which the competent and honorable dentist has to contend, especially in a country like this. It is true this cheap work rarely if ever gives satisfaction, but then it affords ground for complaint against better work. This state of things compels many to work for lower prices than they otherwise would; and in this way they become ultimately demoralized, some good men in their attempt to compete with cheap teeth and cheap men and worthless work, come to very low prices for the purpose of convincing the people that there is a better way.

Dr. Hays remarked that the people in his section, (Rushville,) are becoming awakened to the necessity of securing competent dentists, having been imposed upon very greatly.

He regards rubber as the great cause of this state of things and he hoped to soon return to the good old way of gold plate for artificial teeth.

Dr. Stanley said he knew very little of the status of mechanical dentistry, for some time had but little to do with it—engaged in operating principally.

Dr. Wells, of Indianapolis, said he had done nothing at artificial teeth for months.

Dr. Ellis said he recommended good artificial teeth and wanted the regular price for his services and was not in favor of cheap work nor doing any injustice to his work or family for the sake of competing in low prices and believed he did as much work as those that made the price the scale of competition instead of good service.

Dr. Chappell said mechanical dentistry has been supplying a very important work, and as every thing has its day, and the dentists' mellenium approaches, we soon hope to dispense with all necessity for artificial teeth; but those that have been compelled to use them should join in solid battle array against this evil afflicting the future generations. Every dentist should use his entire professional energy in advising and operating for the preservation of natural teeth, and in this age there is need of a fine dental operator for every township throughout the state, and in same proportion for the towns and cities; and as there is much difference in price of artificial teeth as in operating by different dentists.

Dr. Budd believed that there was more demand for improvement with the dentists in saving the teeth rather than to sacrifice them for the purpose of our gaining more proficiency in making artificial ones, and that mechanical dentistry no doubt was enjoying its own proper sphere, owing to the cheapness of teeth and poor operators on natural teeth and bad mechanics in the mechanical branch, and the want of true cultivation of the people to the importance of saving their natural teeth is the only salvation for the people or the profession, and the only standard

by which our proper sphere as a specialty or distinct profession can be maintained.

Dr. Jamison said we can not expect the people to be cultivated in the value of substantial dental practice unless the dentist takes the responsibility to do the right and with dignity maintain it, if cheap teeth on rubber was right he failed to see it, and had for a long time advised against the use of it by respectable dentists and the patients generally, and was glad to know that dentists were discontinuing the business of artificial teeth and rubber especially when they were compelled to make them. So long as some dentists take students, as in some cases, by the half dozen at a time, exacting from them \$50 to \$200 each, and in a few weeks starting them out as Dr. so and so to pull out teeth and put in artificial substitutes at any price they can get, so long will the people be imposed upon and cheap dentistry be in the land. If members of the societies who subscribed to our code of ethics would live to their promises and not violate the obligations of a gentleman of honor, much could be accomplished in the way of true dental practice and the people be better served, and the profession highly honored.

Dr. Webb Hays, of Russellville, submitted a very extraordinary specimen of teeth. Three teeth, crowns and half of roots, two bicuspid, one molar resting in a piece of bone one and half by two and a half ins. by one eighth inch thick, porous and laminated and corrugated, the molar appeared to be carious, dentine nearly all gone, over half of enamel perfect, bicuspid perfect, the case was one of "extra uterine fœtation" the lady had given birth to two children before the appearance of the tumor and two since the appearance.

REPORT OF AUTOPSY.

Mrs. M., aged 59 years; body very much emaciated, great enlargement of abdomen and epigastric—scalpel introduced in the enlargement in the middle of left lumbar region, wall thick, knife cutting with a gritty feel—hints of 1st serous fluid and lastly of serous mixed with pus—after fluid passed there was great redundancy of tissue, on opening the cavity it was a thick,

corrugated wall with bony deposits over its whole extent with an occasional process of enamel with perfectly formed teeth. The general appearance of the inner wall of the sac was that of coral deposit the sac was adherent to the convolutions of the intestines. Below it was partially free. Fimbriated extremities were adherent to and lost in the sac, a large tumor formed the upper part of the anterior portion of the wall of the sac about seven inches in length, four and half in breadth, concave on both surfaces, two and one half inches in thickness. On opening longitudinally filled with sero-purulent matter, on removing the fluid, the cavity was found to be divided into fossa, and sinuses with bony walls and septums having the general appearance of brain cavity.

Uterus normal in situ, fallopian tubes pass off to either side properly degenerated over the sac, fimbriated extremities, adherent to and lost in the large abnormal sac at their respective sides.

Bladder adherent to pelvic wall tissue soft, friable, easily broken with finger, filled with purulent matter, kidneys normal in size, weight and color; spleen thickened and softened; appearance on being cut of a mass of clotted blood, liver enlarged, grayish, soft in texture, adherent, lower border on right side to abdominal walls, lungs normal, adherent posteriorly; heart natural in size, sac filled with serum.

CASES IN PRACTICE.

BY J. J. ERWIN.

In dental practice there arise many incidents which, were they submitted in a manner that would bring them before the profession, might result in much benefit and satisfaction; whereas, when secrecy is maintained, none are benefited save he who is fortunate enough to have been the discoverer, and he not so much as he would if his discoveries were submitted for the criticism of others,—though not more competent than himself; ideas may be gathered even from our inferiors, which, were they applied in the proper manner and place, would prove to be of great advantage. Whether these remarks may be illustrated in the case supplemented, remains for the reader to determine.

Mrs. J. R., aged about twenty; teeth of frail, glassy, light blue color, called at my office according to engagement, and submitted herself for the filling of the right superior, second molar, which was slightly decayed in central crown. Never having caused her any pain or other inconvenience, we apprehended nothing more than an ordinary case of crown filling, and proceeded with rubber dam, clamps, etc., when, by following the decay into the substance of the tooth, though slight externally, it penetrated to, and revealed the pulp cavity destitute of any substance whatever; not even the trace of a membrane to show there had once been a vital substance there.

The chamber was perfectly formed, dry and emitted no odor or other signs of previous decomposition. As there were no traces of inflammation, we proceeded to fill with gold at once; and to date, the parts have remained normal and manifest no contrary indications for the future.

It is not possible that the tooth was formed without the necessary vital support, yet what became of it without some indications of inflammation or even suppuration, the evidence of the case does not satisfactorily show.

Also, Mrs. B., aged about twenty-two, temperament similar, (and from the effects of a prolonged attack of *facial neuralgia*, had grown exceedingly nervous,) presented herself June 12th, for the purpose of having her teeth extracted preparatory to the insertion of a full artificial denture. On examination I found but four which were free from decay, the remainder of which presented a mass of corruption, with gums of a purple hue and exuding puss which emitted an odor indicative of a prolonged state of disease.

I proceeded at once to rid the mouth of this corruption and in so doing revealed a right inferior cuspid bifurcated one half the length of the root. The specimen I donate to your college museum, as a rarity not often met with. The neuralgia which heretofore has baffled all medical treatment I think had its origin in these teeth and anticipate a speedy recovery.

Boston, June 29, 1875.

To the Editor of the Dental Register :

Dear Sir.—At a Union Convention of the Mass. Dental Society and the Merrimack Valley Dental Association held at Lawrence, June 15, 1875, the enclosed resolution was passed. In compliance with that vote I forward it to you with the request to publish in your Journal. Yours Truly,

Geo. F. Grant.

Recording Secretary Mass. Dental Society, 224 Cambridge Street.

Resolved, That we, the members of the Massachusetts and Merrimack Valley Dental Societies, in Convention assembled, recommend to all dental practitioners, the discontinuance of the use of Rubber as a base for artificial teeth and the adoption in place thereof of Celluloid, believing this course would not only be for the best interest of ourselves, but for our patients whom we serve.

Voted.—On motion of Dr. McDougal, that a copy of the above resolution be sent to all the dental journals of the country with a request to publish.

Editorial.

AMALGAM.

In the Transactions of the New York Odontological Society for December, 1874, are three articles upon the subject of amalgam, as a material for filling teeth. Each of these papers possesses some interest, since they make the impression, if they do not make the direct claim that they are based upon, and involve a great amount of experience, research and experiment. We now have only a few thoughts upon the first article, that by Dr. S. P. Cutler, of Memphis, Tenn. What he is aiming at in the paper, is not very clear. Is it to prove that the common amalgam or any amalgam constitutes a good filling for decayed teeth? If so, the course he takes is a very strange one for every experiment he gives or refers to, bears upon its face strong evidence against the material for this purpose. He says, "Filings of Platinum and mercury rubbed together in the palm of the hand do not amalgamate," * * * they do not form a metallic mass at all, but remain in the form of a dark powder." Is a black powder a good material with which to fill teeth? Again "I combined platinum with silver and tin in small proportion and found that just in proportion to the amount of platinum was the amalgamation retarded." * * "So long as there was any platinum present, so long was the process retarded."

Such an amalgam is certainly not good. Again, "The next experiment was with platinum and gold, one equivalent of platinum and two of gold; amalgamation was very slow, requiring considerable rubbing. After the lapse of two weeks, it was not firm, but was easily picked to pieces with the finger nail; in fact it did not harden to any extent, * * I considered this form useless in practice."

His next experiment is, "One-fourth part platinum and one-half part gold, ordinary amalgam, equal quantity to both. These amalgamated, the process being very slow and difficult.

* * This was of grayish-white, rather dirty in appearance, and did not become hard and firm."

Certainly no one would claim that this is a good or even admissible material for filling teeth. In his fifth experiment he takes, "One equivalent of platinum, one equivalent of gold and four equivalents of common amalgam of equal parts of silver and tin * * ; twenty-four grains of this, combined with sixteen of mercury pressed in the hand only. This was much whiter than the other preparations, and amalgamated much sooner. * * There was a good deal of dark matter, no doubt from the tin."

"After twenty-four hours, weather temperate, the lump had lost one grain, was white and firm, but not hard enough for durable work; in twenty-four hours longer, the mass had become quite as firm as ordinary amalgam. This would answer for front teeth, badly decayed, as it would hold its color quite well, but be no better for back teeth than common amalgam."

Was it the "temperate weather" that removed the deal of dark matter and made the lump white and firm? Temperate weather is good on some things, but we did not know that it would knock the dark spots out of amalgam. If the amalgam will answer for badly decayed front teeth, why will it not answer just as well and better for front teeth not badly decayed? Or is extensive and bad decay, an element of success in the use of this material? It would seem so from the oft repeated statements that are made in this direction.

Or is this particular amalgam good for badly decayed front teeth because it has a good deal of dark matter in it, that

would be positive and well defined and so more sightly than the sickly hue of a badly decayed front tooth? If this amalgam is good for front teeth why is it not good for molars and bicuspidis?

The Doctor by his experiment rather condemns copper amalgam for filling teeth, he says: "Copper filings, rubbed with mercury, do not easily amalgamate, * * does not harden at all." That fixes that matter. Next!

"Brass filings, after considerable rubbing, amalgamate slowly, but quicker than copper, owing to the zinc in the brass. This specimen did not harden in the least." But it beat the copper. Brass amalgam is not reliable for filling teeth!

"Nickel does not unite with mercury after long rubbing, hence could be of no use in amalgams." This statement is quite satisfactory. However, would *short* rubbing help the matter any.

Again, "Cadmium combined with common amalgam, would only injure the preparation, from the fact of its readiness to oxidize in the mouth, forming a soluble oxide, which would endanger the pulp of the tooth." Another very objectionable compound.

In another paragraph he says: "I next tried Dr. E. A. Bogue's formula, as given in the April number of the Dental Advertiser. Twenty-four grs. of amalgam alloy and seven grs. of mercury, rubbed together in the hand, as usual, formed a gray powder, which would not form a mass by ordinary pressure, * * but by heating the instrument, consolidation was made perfect"

* * After filling a cavity in this way and removing immediately, it fell to powder as before filling. Upper teeth could not be easily filled with this powder."

We will accept this as a correct conclusion.

Now these embrace a portion of the experiments made by Dr. Cutler as recorded in his paper before the Odontological Society at New York, and so far as they go, to prove anything, it is that amalgam is a very unsuitable material for filling teeth. The remaining experiments and his statements upon the subject, contained in the latter part of his article, we will reserve for another time.

MICHIGAN UNIVERSITY DENTAL COLLEGE.

At the last session of the Michigan Legislature, an appropriation was made for the establishment of a Dental Department in the Michigan University, following which the Regents of the Institution established such a department and have appointed professors and teachers, and are proceeding to complete the arrangements as rapidly as possible; and it is proposed to have all things in readiness for operation by the 1st of Oct., next. The course will begin at and occupy the same time (viz, six months) as the medical term.

The following requirements are established: A course of of three years pupillage with two full courses of college instructions, three are advised. For admission a satisfactory examination, as to literary attainments. For graduation a good moral character; a satisfactory examination upon all the branches; taught together with good evidence of skill and ability for the speciality.

All the aids and facilities of the University are at the service of the student. The hearty co-operation of the dental profession of Michigan, with the University, in this enterprise, will result in the establishment of one of the best Dental Colleges in the world. Instruction upon the various branches will be given by the following Professors:

J. B. Angell, L. L. D., President.

Corydon L. Ford, M. A., M. D., Anatomy and Physiology.

Alonzo B. Palmer, M. A., M. D., Pathology.

Donald Maclean, M. D., Surgery.

F. H. Gerrish, M. A., M. D., Therapeutics and Materia Medica.

E. S. Dunster, M. A., M. D., Diseases of Women and Children.

Silas H. Douglas, M. A., M. D., Chemistry, and Director Chemical Laboratory.

J. Taft, D. D. S., Principles of Operative Dentistry.

J. A. Watling, D. D. S., Clinical and Mechanical Dentistry.

W. H. Jackson, Demonstrator.

CELLULOID—A NEW APPARATUS.

The reports upon the value and efficiency of celluloid increase in strength and number daily. The improvements in the material and the apparatus for working it, and the growing knowledge of, and increased skill in working it, about warrant the assertion that it is one of the established resources of the profession.

The amount of the material sold is largely on the increase. One large dental depot reports that they sell celluloid, for quite as many dentures, as rubber, and the celluloid goes to a far larger number of dentists than the rubber. The facilities for working it are continually being increased. It is now worked more successfully in dry heat than in steam or oil. A dry heater invented and constructed by Dr. Talbot, of Chicago, is certainly a very effective apparatus. There is no possibility of an explosion, the progress of the work can be observed and any irregularities corrected. The plates come from the plaster in far better condition, so far as smoothness is concerned, when worked in dry heat. It is also found that there is no difficulty in uniting it. We recently saw a plate composed wholly of small fragments of the material, and it seemed about as perfect as any plate.

The warping, springing and drawing from the teeth have all disappeared under the present skill and knowledge. Celluloid is for more pleasant to work, and vastly better in the mouth. We have not yet seen the mucous membrane of the mouth, affected by contact with a celluloid plate.

SENSITIVE DENTINE.

Use "Pain obtunder" for sensitive dentine? yes, most assuredly, we would be very unwilling to be without it. The only unpleasant thing about it is, that there is some of our brethren

who can not avail themselves of it; it will not dance when they whistle. Well gentlemen you don't whistle right.

Some in the profession regard this agent as very valuable, while others esteem it as totally worthless, for sensitive dentine at least. This would seem a strange thing were it not that there are many parallels.

PERSONAL.

The fact stated on another page that the Editor of the REGISTER has accepted a position as teacher in the Dental Department of Michigan University has lead to some inquiry as to how it will affect his other engagements. In reply to such inquiries we will say that it will make no interruption in the course of instruction on Operative Dentistry in the Ohio Dental College, this will be given just as usual except that a little change in the order of the lectures will be necessary. It will not in the least interfere with the work upon the REGISTER, except perhaps improve it a little we hope.

Other matters will receive attention about as heretofore. A season of freedom for a few days each month, from the pressing cares of business will be very agreeable.

OHIO DENTAL COLLEGE.

The clinic rooms of this institution will be open for the reception of students on the 1st of Sept. next, when the advantages of this department will be open to all who may come; they will be under the direction of suitable instructors, and are required to engage themselves upon whatever may be placed before them. Let all come who can.

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[No. 9.]

DENTAL EDUCATION.

BY E. J. WAYE, D. D. S.

Read before the Northern Ohio Dental Association upon retiring from the Presidency.

This subject is one which to many men in the profession possesses but little interest, that is to say in a general sense; I believe that a very large majority favor education to an extent, for instance, most desire such an education as will best enable them to fill a tooth with skill and elegance, or to construct with nice mechanical ingenuity, possibly with artistic taste, an artificial denture. They may even go farther, and desire such knowledge as will assist them to diagnose the condition of a tooth, diseased, and also the best manner of treatment. But of that broader knowledge of all the parts, their connection and sympathy, their anatomy, physiology, patho-

logy and chemistry, indeed all the wide domain of study embraced in a thorough dental education, for how few, comparatively, has it either interest or attraction. To illustrate; visit one of our dental societies. The subject for discussion, we will suppose to be operative dentistry; you will soon discover that there exists a lively interest in the subject, both speakers and listeners wide awake and anxious both to hear and be heard, and as the best methods of operating, the different materials in use, the various preparations of gold and its manipulations are in turn discussed, you will not fail to perceive an eager earnestness to hear and understand every new method. And so long as the purely practical operation of the office and laboratory are presented for their consideration, there will be found no lack of attention or interest, but on the contrary there will be invariably manifested, an earnest desire to know all that may be taught regarding the absorbing topic.

How is it when the subjects of chemistry, histology or microscopy, claim their attention? A very brief observation is sufficient to convince the most skeptical, that for them, these subjects possess but little interest. Nay! that they are not understood; and judging by the indifference manifested, are considered as of little practical importance, other, than as furnishing topics upon which grave and learned professors may discant, disagree and mystify their audience and each other, and that so far from being of any real value in the struggle for patronage and preferment in life, or of practical benefit in office is concerned all knowledge of them may very well be dispensed with.

Were this indifference and ignorance confined to those, whose only claim to dental knowledge was acquired in the office and laboratory, it would be less a matter of surprise; but such is not the fact. Graduates from dental colleges to an extent almost beyond credence, are to be found in this class; men who having had opportunities and facilities for the study of every department of dental science, have devoted nearly their entire attention to the acquirement of such as would soonest secure a living; contenting themselves with such a

merely superficial smattering of the rest, as would enable them to pass an examination.

Now if this statement be true, (and that it is so, I appeal to every observing man,) is it not apparent, that there must be a defect in the system under which they are educated? Or if not in the system itself, may it not be due to the fact, that certain things which are believed to be the essentials, are studied, (I do not say taught,) to the neglect of others equally important, as constituting a part of a thorough dental education, though not perhaps to the attainment of immediate practice? A young man, a graduate who possesses more than ordinary skill in the practical details of the profession, said to me lately, "I had when in college, an excellent opportunity for the study of histology, but finding most of the students eager to acquire the operative and mechanical, they being considered the essentials, I devoted most of my time to this study, much to my regret, whenever I happen to be present where that subject is under discussion."

What is the inference? Not that Histology was not taught certainly, but that in some way not easily explained perhaps, it was not assigned that prominence which its importance in dental education would justify, if not demand, and also (does it not?) a lack of thoroughness in the closing examination?

The want of a complete education is by no means, the distinguishing characteristic of the dentist. The professions both of law and medicine are similarly afflicted, and are earnestly seeking for the remedy. A leading medical journal, remarking upon the declension of physicians in public esteem, states as one of the reasons therefore: "The yearly out pouring, from the colleges of semi educated men," and assigns as a cause of this "semi education." The evasion of regulations, using these words; "The *theory* of medical education is, that the candidate studies a year and a half in the office of some practitioner, and then attends two courses of lectures before he graduates, making in all, a term of three years. The *fact* is, that a large proportion of the candidates really study only one year and a half, and some only one year."

If this be true of medicine are there no grounds for suspecting a like evasion in dentistry?

The regulations which govern the requirements as to lecture and office pupilage, are similar, and the facilities for acquiring knowledge, and for evasion of regulations the same; why should we expect different results?

To the dental college more perhaps than to all other influences, do we as a profession owe whatever of scientific knowledge and investigation, as well as professional standing we possess; Appreciating fully our indebtedness to this source, it is with greater regret, that anything whatever, tending to weaken or destroy an unquestioning confidence in these institutions, should be witnessed as the result of their teaching, or mentioned, save in the spirit of kindness and appreciation, and as seeking a remedy for existing defects, rather than as upbraiding for past shortcomings.

Whatever the reasons, the facts are that thoroughly educated dentists are the exception, and semi (or less) educated ones the rule. To the colleges, as the highest exponents of dental education do we first look, asking and expecting that, if there be defects, either in regulations or modes of teaching that they be promptly acknowledged and remedied, and having done that, it may not be amiss for us, as members of a profession, whose common aim and interest should be its elevation and advancement, to ask ourselves, how have our duties toward these institutions, through which mainly we expect its accomplishment, been performed? First, in regard to students.

The theory is, that three years pupilage with some dentist of respectability, two courses of lectures, concluding with a satisfactory examination, constitutes a dental education, upon which the possessor may enter into practice, and aided by experience, become a dentist in the best sense of the term?

What is the practice?

Either for a consideration, or because an office boy is wanted, a young man is received as a student who neither, by natural gifts or education, is in any sense adapted to the profession.

His education consists in being office boy, bill collector, plate scourer, (including the more laborious and disagreeable duties of the laboratory,) and malleter.

Entering upon this pupillage, with little or no education, with no known aptitude, for the delicate and difficult manipulations, peculiar to dentistry, with no habits of thought or study, he remains the prescribed term, (which is longer or shorter as his usefulness or the consideration may determine,) and with certificate of pupillage duly signed, is handed over to the college in the confident expectation, that with such an office experience, and two full courses of lectures, he will come out perfected and finished, in the entire curriculum, as per college announcement.

In this connection, it must be remembered that neither in dental or medical colleges, are students submitted to any examination, no questions being asked as to previous education; and as an inevitable result, men are admitted and graduated, who are unable to speak or write the English language correctly, and who must labor under a very serious disadvantage in not being able to understand and comprehend much of the language either in the text book or the lecture.

With such material and such preparatory teaching as a foundation, is it fair or reasonable, to expect, that two courses of lectures, however thorough and exhaustive, will suffice to rear a professional superstructure, which shall honor the profession and bless the community?

The fact is that comparatively few dentists, in these days, are competent to the task of properly instructing students: They may, it is true, impart some knowledge of the manipulations, both operative and mechanical, but as to directing or assisting them in the various studies prescribed by the colleges,—how many themselves possess the knowledge adequate to its performance? And of those who do, what proportion will conscientiously and earnestly exert themselves to impart it?

Herein lies an evil which must be remedied, before we can rationally entertain high hopes for the coming dentist.

The college by offering a preparatory course of instruction

in view of office pupillage, has taken an important step in the right direction; one which is believed to possess such advantages as will eventually result in its becoming universally adopted. Not the least important of which rests in the fact, that while the pecuniary interests of the preceptor might, and doubtless many times does, prompt him to employ the time of the student for his own emolument or convenience, rather than the others improvement,—in the college no such inducement exists; while there is the additional advantage of receiving such aid in prosecuting his studies, as is rarely attainable in a dental office.

All this is gain to the student. Let us see if the college is not benefited as well.

Instead of receiving its matriculants from the office of any and every dentist whose interest or inclination may prompt to take a student; it is enabled to select from the infirmary, young men, whose education, natural aptitude and application to study, eminently fit them to receive and profit by its instructions; and who when entered upon active practice, will honor the institution from whence they graduate, the profession to which they are admitted, and bless the community whose good fortune it may be to receive their skillful and benign ministrations.

In conclusion, it is believed that whenever the dental college shall be owned and controlled by the dentists of the state wherein located, and aided by a law which provides that only through its portals, may any man enter our noble profession, the conditions for the remedy of existing evils will have been secured; and that, in the future, the reproach of ignorance and incompetency, now, too frequently with justice, preferred against us as a profession, will cease to mortify our pride, weaken our influence and afflict community.

PROFESSIONAL COURTESY

BY W. C. SHEPPARD, COLUMBIA, TENN.

Read before the Tennessee State Dental Society.

In all the learned professions, and indeed among all men who pursue the same vocation, there are certain rules and regulations, touching the conduct of one to another, which are obtained by mutual consent.

The members of the legal profession, have rules which regulate their conduct, both with the public, their clients and with each other; which if wantonly and ruthlessly disregarded do not fail to bring the offender into shame and disgrace with his brethren. In a high toned and intelligent community, the lawyer who underbids his fellows; depreciates openly their ability, or business qualities, or fails to treat even the youngest member of the profession with kindness and courtesy, is sure to fall into disrepute, and finally to be frowned down by all. In the practice of law, it is not an unusual thing, for a young practitioner, before taking steps in a suit, to consult some one of the older members and get his advice as to the law of the case and mode of proceeding.

And this would not be refused, even though the older member had reasons to believe that he himself would probably be employed on the other side. The medical profession not less than the legal, has also its rules of etiquette and courtesy, and it is not going too far to say that no physician dare, with impunity, to violate the well known and established rules by which the profession is governed, in its intercourse the one with the other. In both legal and medical profession it is one of the highest marks of professional courtesy, that the oldest and best informed are always solicitous, to aid the younger members, in their honest efforts, to arrive at professional skill and success. If I am not misinformed as to these

things; the old lawyer or physician who would refuse to give to his young and ambitious brother, the benefits of his superior learning and experience, on all proper occasions, would be regarded by the profession, as a disgrace to its ranks.

All this of course, does not by any means preclude the idea, that the honorable portion of either profession, would not be slow to condemn in the most unmistakable terms, the knave, the shyster, the quack and the charlatan.

The remarks I have made, are only applicable to those who pursue their respective professions in an honorable line, and who have some other ambition save the mere question of gain. Our profession, in some respects, is in its infancy. True! wonderful progress has been made towards perfection, and now more particularly, in the last few years, and we may with almost certainty, look for rapid progress in the future. In the last few years, its advancement has been such, that it now ranks, as one of the learned professions, and contains within its circle, some of the most learned and useful men of the country. Its benefits, and blessings upon the community at large, are felt and acknowledged everywhere. And those who are really worthy, are reaping as much reward, for their learning and skill, as the members of any other profession. Standing thus, before the world, is it not due to ourselves and to our vocation, that we should be governed in our conduct towards the world, and especially towards each other, by rules and principles, which will add, not only to our pleasure, but which will be sure to elevate and dignify; the station of professional excellency? It is said that we have many ignorant and unworthy members in our profession. If this be true, why is it so? If we would deter the ignorant, and unworthy from entering our ranks, we should so elevate and dignify the profession, that the *low, vulgar and unprincipled*, can not stand the light of an enlightened and gentlemanly profession. We should ever forbear to comment severely on the young, but earnest and honest beginner in the profession. Rather let us aid and encourage him, let us instruct him, and should he inadvertently make a mistake, let us go to him first, and give him an opportunity to correct his error.

How shameful it is, to hear a member of the profession, by hints, inuendoes and insinuations, seeking to bring into contempt, a young professional brother. If we are called upon to operate on a patient, who has had the services of some other dentist, and should discover what we consider to be an error in his work, would it not be better and far more dignified and gentlemanly, to repair the work and make no comments? If our own operation is scientific and successful, the patient will be sure to find it out himself, and will not be slow to let it be known to his friends, and thus save us the trouble of blowing our own trumpets at the expense and mortification of a fellow laborer in the profession. It has fallen to the lot of the writer, whilst honestly struggling to win an honorable position in his profession, to be a sufferer from unprofessional conduct, like that to which we have referred, and had it not been for a dogged determination on his part to allow no difficulties to discourage him, he might have long ago, retired from the ranks of the profession in disgust.

We trust it will not be considered immodest on the part of the writer, to say this much.

All men have not sufficient courage to stand the assaults of envy, malice and detraction, and we doubt not that many a brilliant and noble spirit has been banished from the profession by reason of unnecessary and wanton attacks, upon their professional character, made by men who were themselves unworthy.

Another means of depreciating the character of the profession, is that of underbidding for practice, though we are glad to know, that this does not now exist to the extent that it did formerly, yet we are by no means free from it.

As a general rule, it is not only the right, but it is the duty, of every person to obtain professional services, at the lowest rates they can, and while we are sincerely opposed to extortion or professional combination, to run up prices, we are as earnest in our advocacy of sound living prices for our labor, and he, who for the sake of building up a practice, charges less than usual, and living rates, is wholly unworthy of the profession.

Our profession is one which is taking a high stand in the country.

Its rewards, (though sometimes delayed,) are sure to come to him who cultivates the virtues of industry, patience, investigation and honorable ambition. It is justly regarded as an indispensable profession to the world, and whilst we are struggling to enlarge the sphere of its usefulness, let us not forget to elevate its standard of morals, ennoble and dignify, the characters of its members, so that to be a scientific, successful dentist, will not only insure gain, but be a passport to the best and most enlightened circles of society.

THE DENTAL PROFESSION IN ENGLAND.

BY W. N. WAITE, D. D. S., OF LIVERPOOL, ENGLAND.

Read before the New York State Dental Society June 1875.

In order to understand the present state of the dental profession in England, a brief retrospect is necessary; and looking back only about twenty years, we see that a vigorous effort was then made by some eminent men of that period, to establish a "College of Dentists," which should somewhat resemble the existing Colleges in America, and seek ultimately for a government charter, to give authority to their diploma: This attempt, after some years of struggling, failed, not because the object was undesirable, nor because any better method, of attaining the object was discovered nor on account of any diminution of necessity for some such institution; but, as is too often the case in praiseworthy undertakings, failure arose from internal dissension and jealousy.

Up to this period, those dentists who desired to stand well before the public as educated practitioners, had resorted to the only available qualification, that had any bearing on their specialty, namely, the certificate of membership of the Royal College of Surgeons.

These men stood well with their medical confreres, and aspired to be leaders among their dental brethren. For some time they worked well in connection with the scheme of the College of Dentists, but when this failed to offer them the distinction they coveted, a new scheme was propounded by which the dental profession was to be tacked on to the tail of the medical profession; derive its qualification from a medical institution, the Royal College of Surgeons, and become to all intents and purposes an appendage rather than a strong, united and independent body.

The Odontological Society which originated mainly in the break up of the College of Dentists, took up this role, and by dint of great labor and undaunted perseverance, at length succeeded, in 1859, in persuading the R. C. S. to institute a dental examination and confer a dental diploma.

The name of the diploma is as follows: "Licentiate of Dental Surgery of the Royal College of Surgeons."

(It may not be known to Americans that, according to British law, and with a view to furnishing funds for the support of the British aristocratic paupers, that no man can sell tea, coffee, tobacco, spirits, or keep a horse, dog, carriage or gun without taking out a license and paying duty. Hence, over every grocery store you may read "Licensed to sell tea, coffee, etc. In like manner, to complete the scheme, and with a view to make the public familiar with the honorable distinction conferred upon certain dentists by the R. C. S., ought they not to be required to paint over their door "Licensed to pull teeth.")

In 1859, the R. C. S. announced that a curriculum of study had been arranged, consisting chiefly of attendance at the usual courses at the medical schools, and that after a certain period of instruction students may present themselves for exam-

ination before a board comprised of three surgeons and three dentists.

Further, it was announced that any one whose education commenced prior to the date of this arrangement might, on filling up certain forms of enquiry, be admitted to a modified examination, and thus obtain the diploma. This provision of course covers existing practitioners. In perfect simplicity and good faith, quite a large number of applications were sent in during the four years for which this modified examination was kept open, but the treatment accorded the applicants was both partial and arbitrary. In many cases men of known reputation and unquestioned ability and established practices were refused permission to come up for examination. No reason being assigned for their rejection; while, on the other hand, men were admitted whose connection with dentistry in any shape was only for a few months' duration, and whose fitness for practice was notoriously insufficient. One such case may serve as example: A man who, with his father, had carried on business as a pickle manufacturer, and who had again and again come to grief, so that his character and credit were entirely done for, turned his attention to dentistry. A practitioner who had already obtained the diploma and who now holds the office of dental surgeon to a large hospital, got hold of Mr. Picklemaker and undertook to get him the diploma for the paltry consideration of £10 or about fifty dollars.

By means of some coaching up and a good deal false statement, the plan succeeded, and in a short time Mr. Picklemaker came forth a Licentiate of Dental Surgery of R. C. S. Of course, any thing like professional behavior was out of the question, and, so walking through the streets of the city where he resides, you may see attached to lamp posts and other accessible positions, sign boards announcing his name, profession and qualification in characters that are unmistakable. This notwithstanding one of the requirements of graduates is that they take an oath not to use any advertisements.

In 1863, this arrangement ceased, and the result of four years nominal admission, upon a mere pretense of examina-

tion was, that for all Great Britain 250 were, or probably one-tenth of the profession, made licentiates of the R. C. S.

The real value of the diploma and the appreciation accorded to it by the profession and public, now became evident by the number of students who entered the curriculum appointed as a preparation for the real examination.

The average of ten years from 1863 to 1873, for all Great Britain was seven per annum. Of course, even the most bigoted partisans of this scheme could hardly pretend to be satisfied with this product while the bulk of the profession pointed to it as the natural result of bad management and favoritism. Dissension prevailed extensively, and at length an attempt was made to undo, or rather do over again the work so badly bungled from 1859 to '63. A committee was formed and, after two years wire pulling and wheel turning, a petition was presented to the governing body of the R. C. S., praying that the doors may be reopened to those who were in practice prior to 1859, with a view to their admission to the ranks, now somewhat thinned by death and other causes. It was probably perceived that to answer this request would be to admit past error, and offer a poor solatium to those who had been confessedly mal-treated. So more wire pulling had to be resorted to, and at length a reluctant consent was wrung from the council, during July, 1874.

No sooner said than done! The British Journal, for that month (the acknowledged penny whistle of the Odontological Society) was kept back in order to carry forth with a flourish of trumpets, the invitation to practitioners.

"Walk up, gentlemen, walk up!"

Now's your time gents, only 10 guineas! The last point very emphatic, for it was freely surmised, and that not without reason, that only the prospect of a shower of gold, would have induced the council to yield the point.

The next month's journal announced that thirty-six applications had been already received from old practitioners, for admission to the examination, which would be held at Christmas last. Of these thirty-six, three were from persons known to the writer, and the kind of reception accorded, was as

follows: Two were immediately accepted, on their supplying the proper forms filled up. The third was subjected to a series of impertinent questions, and at last (three weeks after the examination had passed by,) was informed that he would not be admitted.

The case was thus: One of the questions contained in the preliminary form, is, "Do you employ any advertisements?" Now it so happened that all the three had employed advertisements of a very simple and inoffensive kind, within the prescribed period, *but*, the two who were admitted answered no! while the rejected one answered, yes, and thus lost his chance.

When the week of examination came, one of these two was detained at home by domestic trouble. The other having been informed that his examination would be on Friday, Jan. 8, went to London. He found some fifteen youths, waiting with one old practitioner, and after devoting some five hours to answering as many written questions, he was coolly told that his oral examination would take place on that day, week.

Now it should be known that hitherto, written and oral examinations have always been held on the same day or one or two succeeding days, but on this, the first occasion of inviting gentlemen from a distance, they arranged to put a week's interval between, thus necessitating upwards of a week's absence from home, and residence in London, or, two expensive and tedious journeys, to and fro, making six days absence and double cost, where one journey and three days absence would have been ample. The gentleman referred to, declined to go up a second time, but they had fingered his 10 guineas, before announcing the facts to him!

What had become of the other thirty-three?

Such abominable arbitrary and unreasonable behavior, on the part of the examining board, renders the reopening of the examination, nothing more or less than a farce, and so far from serving the interests of the profession, or promoting its advance before the public, it will assuredly make the diploma less popular, and postpone still further, the term for our

recognition by Parliament as a body of skillful and competent men. There is this consolation for all who paid to obtain the diploma, viz: that to those already established in practice, it can be of no possible value, inasmuch as the public generally beyond a few here and there, do not so much as know if there be any diploma. The next 10 or 15 years will probably see the number of licentiates so far reduced as to render the parchment valueless to beginners.

It is much to be deplored, that our profession in this country should be hampered and choked and disintegrated through the bungling stupidity of a few earnest men, who through pure selfishness and narrow mindedness persist in holding the reins, notwithstanding their utter inability to drive. Some blame is no doubt due to those who stand by quietly and submit to be ruled by incompetent men, but the question remains what can be done? We have only one center in England, viz: London, and London essays to govern the country in more ways than in dentistry. If London be wrong, there may be suffering and ill consequences to bear, but there is no other rallying point.

It may be asked, why be so anxious for this diploma to be wider spread? only for one reason. If all the really respectable men held it, and were to unite in a compact strong phalanx we should soon be able to obtain recognition and some amount of protection, such as medicine enjoys, viz: That no one should be entitled to practice dentistry unless duly qualified by the possession of the diploma, but, so long as there are a number of respectable men excluded, from whatever cause, it is only hopeless, to think of obtaining any such recognition.

The absurdity of making it a *sine qua non*, that no advertisement whatever, should have been used for 15 years past, is more apparent, when one knows, that a considerable sprinkling of the licentiates not only advertise, but do so in the same style, if not to the same extent, as the quacks. True, the Board of Examiners can not prevent the infringement of rule by their alumni, but at least they might make some effort to check the evil, and if that failed, they might strike the name of any advertising licentiate off the list. But

nothing is done. So far from taking off the name of even the most notorious advertiser, they not only publish their list, on every possible occasion, but print it in the *British Journal*, twice over in the same number. Once alphabetically, and once chronologically, to make it appear something worth printing.

The principle adopted by the Board of Examiners in relation to candidates in practice, seems to be, "you must not be known to advertise before you come up, you may do as you like afterwards."

Now it can not be a matter of surprise to any one, that with such disorder and bad management on the part of those who assume the leadership in dental politics, there should be, all sorts of irregularity and confusion among the rank and file.

Hence, while the skilful and competent members of the profession are squabbling and frittering away their best chances of union and recognition, the public are being humbugged and maltreated to a fearful extent by a numerous horde of quacks.

There is scarcely a newspaper in the country that does not contain the announcements of these unscrupulous mountebanks, and they succeed in obtaining a very large share of patronage, thus bringing the practice of dentistry down to the level of a mere trade, in public estimation, and rendering the task of educating the people and elevating the appreciation of high-class operations, all but hopeless. English folks, as a people, have no faith in operative dentistry. When told on every newspaper and railway guide, that they can secure the "very best artificial teeth for 5 shillings each, without extraction of roots or any other painful operation," they naturally conclude to let their teeth do as long as they will and then go in for new ones, since they can be had so cheaply.

Our depot keepers, are partly to blame for this. Their traveling agents, and especially those of our first house, are continually persuading little chemists and others to start dentistry, offering to teach them vulcanite work, and supply them with materials and so on and it is an actual fact, that one of

the largest Jewish firms of dental quacks, can obtain and does obtain his materials at our principal depot at a considerable discount, below the price charged to any other practitioner. All this quackery and huckstering would be demolished, or at least, made to hide its head if the well educated and respectable men were strong and united, and determined to obtain a distinct and acknowledged status. But while they remain disunited and seek what recognition they have, at the hands of another, albeit, a kindred society, it is hopeless to look for any improvement. The profession must be degraded; the public must be gulled; the results must be that educated men, will not put their sons into a calling so uncertain and indefinite. And precisely that result obtains at the present time to a large extent.

A gloomy picture, some one will say. So it is. A most unsatisfactory and unpromising state of things. Even the chemists are ahead of us. They are now required to pass an examination before entering on their calling. Whereas, the tinker or chimney sweep, or quack doctor, or anybody who pleases, may hoist a shingle, with dentist, upon it, and stand as good a chance of public favor, as the most skillful and educated man amongst us.

Having thus briefly, detailed the condition of dental politics in England, it is almost superfluous to say that the chief occupation of the English dentist, is making artificial cases.

An apprentice to one of the most respectable practitioners in this city, after five years spent in the workshop, had not even attempted to extract a tooth, much less to fill, or perform any more delicate operation. Should he have time and money to enable him to go through the curriculum for the diploma he will pick up some acquaintance with operations at the Dental Hospital in London, but if, as is most likely, he will not be able to do this, then, he will commence practice sooner or later on his own account without any knowledge whatever of operative dentistry. Thus it is with nearly all.

Naturally such a one, will cultivate the department which he understands, and so, even among competent and skillful mechanics, the operative department is almost entirely

overlooked. This is evident when one hears a conversation between practitioners. In speaking of their amount of business, you always find, they speak of the number of cases in hand, how many full sets or partial sets, how many teeth they have mounted and the like.

He who tries to teach the value of preserving the natural organs, is constantly met by the remark, "oh! I mean to let my teeth go and have a new set." "Mr. so and so, told me long ago that all my teeth would go and it was no use to try to stop them."

Then further, where attempts are made to overcome this wholesale desolation, they are chiefly confined to amalgam fillings, cheap and nasty, but easy to insert. From this custom, one meets the frequent remark. "Oh! my teeth won't bear gold." Mr. so and so, told me so years ago." Of course if you succeed in overcoming that obstacle, and get alongside the question of cost, you at once seem to be striving after the larger fees and are very likely to be suspected, while Mr. so and so, was implicitly believed.

But let this suffice. There are many very good and able men over here fighting hard for better days, and hope that star in man's brain which never ceases to shine, bids us look forward, and resolve, that for ourselves we will do our utmost, to achieve a better condition, and leave things better than we found them.

IRREGULARITY OF THE TEETH AND TREATMENT.

BY N. E. BEACH, D. D. S.

Read before the Tenn. State Dental Society.

In the selection and arrangement of subjects for discussion, at this, the ninth annual meeting of this association, I am left to select my own; and, at the same time, every department of practical interest to the profession has been well provided for, except that of the treatment of irregularities of the teeth, with its causes, etc.

It does not seem to me that this is a subject which is pressing itself upon the dentist, with such alarming frequency as to demand their most serious consideration.

I do not believe there is in any branch of practice, a greater necessity for scientific investigation than in this.

However much we may shrink from undertaking to correct the irregular development of teeth, the fact still exists, that is, the necessity for such labor, and skill, is on the increase.

Is it true, that so much of the timidity of dentists in the treatment of irregularities of the teeth, is owing to a lack of the inventive skill required to make successful appliances? Or is it the tediousness of the operation, together with the uncertain prognosis? or is it because of the absence of appreciation by the public of this, the highest order of professional skill, together with an unwillingness to compensate the dentist for the time, labor, mental and physical, expense, etc., incurred in the successful treatment of such cases?

If the former, then in my opinion, it would be wise in the dentist to properly instruct such of his patients as may require treatment, and recommend to them, such a one, as in their judgment may be both skillful and willing enough to undertake such labor.

I do not consider it a discredit to any professional man not to be able to do everything pertaining to his profession with equal facility, but, on the contrary, it is manly and wise to say to your patient, that such an operation can be more skillfully done by some one else, and if necessary, go with them and state the object of your visit in such a way as to inspire confidence in all concerned.

How many dentists are there who never extract a tooth or make an artificial denture; yet they stand high in the scientific world. How many M. D's. who never perform a surgical operation, except of minor importance? How many legal gentlemen who never write a brief, because of inability to write a legible hand. Yet such men stand high in their professions.

I feel thankful that the highest order of scientific investigation is now being directed more to the prevention of disease than its remedy, and in order to successfully combat the increasing tendency it is of paramount importance, to first know the causes which produce the irregular development of the human teeth. The researches of Dr N. W. Kingsley of New York, have given us a paper on this subject, published in Dental Cosmos. Vol. xvii. No. 4, which does credit to himself, and the profession of which he is a worthy member, but inasmuch as my object in presenting this paper is to deal with known facts, and offer some suggestions in the treatment of cases belonging to special classes of irregularity, I will make no comment on Dr Kingsley's paper.

We have but two general classes of irregularity of teeth, one inherited, the other accidental.

By inherited irregularity I mean all similarity of arrangement of the teeth of the child to that of either parent. It is a fact well established by observation, that the transmission from parent to offspring of peculiar characteristics, either normal or abnormal through successive generations is common. The same movements of the body, tones of voice, color of hair and eyes, or general expression in features, and also in disease are things of almost daily observation.

Well has it been said by Prof. McQuillen that, "the tend-

ency to the reproduction of individual peculiarities in the descendants of human beings, is in no part of the organism made more markedly manifest than in the structure, size, form, and relative position of the teeth." We see that, with wonderful exactness the teeth of children, and even grandchildren, are in shape and position like that of the parents. Aside from this similarity of form and arrangement, there is another inherent irregularity caused by the child inheriting the maxillary bones from one parent, and, teeth from the other. This is a theory which has met with much favor, and seems logically true, but in reality there is some doubt whether nature would so far depart from her usual course, as to develop the maxillary bones in size and form, like one parent, and their appendages, the teeth and alveolar ridge, like that of the other. To do this, would certainly require an unnatural division of the circulating medium by which these parts are formed. Admitting this to be true in fact, then it must follow that the irregularity will be by the teeth being of the larger type, while the maxillæ are the smaller.

Such a state of things, would produce either too much prominence of the anterior teeth, or crowding out of the arch one or both of the canine teeth. If the former be the case, then in order to remedy the defect, room should first be made by extracting on each side, such a tooth as the condition they are in would indicate, and applying mechanical pressure in the manner described in a series of articles published by Dr. Kingsley in "Johnston's Dental Miscellany" for 1874.

It is sometimes necessary in order to prevent the teeth from slipping by each other, when the pressure is put on the incisors alone, to resort to other means than those mentioned by Dr. K. That which I have found most successful is, to make a plate to envelope all the teeth in the upper jaw except those to be acted on, and on this plate, fasten hooks, or cut slots on both sides of the alveolar ridge as far back as is necessary to get the requisite tension on the rubber tubing. Then cut pieces of tubing of such size as is believed to be of proper strength, pass it over the hooks or slots and bring it forward and pass it over the tooth to be moved, by this means

they may be carried inward and backward, one on each side at a time until they are all in position.

There is another and in some cases, at least a better way than the plan described by Dr. K. That is to take a small band of gold long enough to cover the four anterior teeth, with a small hole in each end, through each of these holes pass a piece of waxed floss silk and tie it in a piece of rubber tubing. On each side of the buccal portion of such a plate, as I have before described, fasten a flattened hook, pass the tubing already tied to the ends of the band, over these hooks, insert the plate in the mouth, and draw the metal band forward place it in position on the outside of the anterior teeth.

This appliance is more easily managed by the patient, acts with more uniform pressure and is less in the way of the tongue than the other.

If the band is inclined to slip too near the gum, fasten it in position with a ligature of floss silk, or silver wire.

If the teeth are too much crowded, with no unnatural protrusion, it will only be necessary to remove one tooth on each side so as to give plenty of room. If this is done in time, they usually regulate themselves.

The next deviation from correct articulation, is the reverse of the one above described, that is, where one or more of the superior incisors fall inside of the inferior ones. It was my purpose to speak of the causes most likely to produce the different forms of irregularity, but it will make my paper too long, therefore I will only speak of such forms as are most frequently met with, and the treatment. This is quite frequent and easily remedied. The best means is not to rely on the old method as taught in most of the books, viz; putting an inclined plane on the lower teeth, but to make a rubber plate, so as to cover most of the roof of the mouth, and the posterior teeth, with a rim passing around the labial portion of the anterior teeth. This should be done so as to give plenty of room to move such teeth as are to be acted on outward, as far as necessary without bringing them in too close contact with said rim; then by cutting holes, or slots in the rim, and applying rubber ligature, either of French tubing,

or strips of rubber dam, the teeth may be drawn out in position in a few days. It will only be necessary to hold them in their new position eight to ten days, when it will be found that the lower teeth will keep them there.

Another form, which requires frequent attention is, cases in which the bicuspids come through on the palatine side of the deciduous molars,⁷ causing a narrowing of the arch. When this is the case with these teeth on both sides of the arch alike, an easy and simple method of forcing them in position, is to swage a metal plate so as to fit closely against the teeth to be moved, and spring it into position, then, by straightning the curvature of the plate every day; and again springing it in position they may generally be easily spread, so as to take their normal position. The change in the shape of the plate will be found to vary, nearly in accordance with the change in the shape of the arch.

When the abnormal condition exists on one side alone, the plate should be made of rubber, so as to fit closely all the teeth on the normal side, and the deviating teeth acted on by means of a suitable jack-screw, so arranged as to use all the teeth on the normal side as a base from which to make pressure on the deviating tooth or teeth. In all cases, the judgment of the operator should designate the length of time it is necessary to wear a retaining plate, when it is necessary at all.

The next class, of which I will speak, is the kind I term accidental irregularity. By the term accidental I include all deviations from a natural arrangement, when there is no indication to lead to the belief that it is in any way hereditary.

When the parents and grandparents, as far as known, all have symmetrically proportioned teeth, evenly arranged, any departure from such an arrangement in their posterity is unnatural and must, of necessity, be accidental.

In this class we find the most frequent departure from a normal condition, to be a twisted condition of the incisor teeth most frequently, but one or two, but occasionally all four of the superior incisors, while the inferior ones are perfectly normal.

The treatment for turning these crooked teeth, as they are commonly called, has in my opinion been much abused by some, who recommend what they designate as "torsion."

The description given of this method, shows that the operation is performed in a few seconds, with the aid of a pair of forceps. While this may prove to be successful in some instances, I regard it as unsafe, and likely to result in the destruction of the dental pulp, and greatly lessen the durability and usefulness of the tooth. A much safer and better method, is by the use of metallic rings with small hooks on them and rubber ligatures, used in the manner described in a paper, I read before this body at our last meeting, when I fully demonstrated by models and appliances, exhibited on that occasion.

In the foregoing remarks, I have not sought to introduce anything new or startling, but simply to give you a brief paper, showing what in my opinion and practice has proven most successful, simple and useful in the treatment of such cases of irregularity, as are of most frequent occurrence.

IS THE PROFESSION OF DENTAL SURGERY IN
ITS RELATIONS TO YOUNG MEN WHO ARE
ENTERING ITS RANKS HOLDING ITS
OWN WITH OTHER PROFESSIONS
AND PURSUITS?

*Essay read before the Wisconsin State Dental Society.
July 21, 1875.*

BY EDGAR PALMER, LA CROSSE.

This question forced itself upon my mind in the spring of 1873, while among the students of the Dental and Medical Colleges of Philadelphia, and has since clamored loudly for an answer. If it be a fact as it seemed apparent to me then, that a majority of the more studious and talented young men were rejecting the science and art of dental surgery, and that it was passing out of the hands of eminent and useful men whose labors have been and are so productive of rich treasures of thought and sentiment and practical knowledge, into the keeping of young men of less intellectual energy and ambition, what causes may be assigned as having a tendency to bring such a result, and what shall be the remedy?

So long as the world is upheld by the veracity of great and good men so long will the visions of youth and the occupation of manhood be directed in search of them, to get a glimpse of their works and if possible to waylay and entrap the secret of their magnetic influence and power. In every profession or pursuit, the rank and file take their cue and derive their stimulus from men of vigorous minds commanding presence, or imputed merit. We attach rank to the leaders of our profession in proportion to the quality of the ideas they embody in their productions or the genius they display in developing the hidden and expectant things of our science and art.

Emerson says: "I count him a great man who inhabits a higher sphere of thought into which other men rise with labor and difficulty."

We have great men in our profession to-day—men of culture,—that professional culture so beautifully represented as “the blossoming pathway leading from mind to progress, whose flowers are planted by discipline, weeded by disappointment and opened by the sunlight of Divine Love.”

But we see these men few by few drop off from the stage of active life, and who shall fill their places—what is the character of those just setting out in the profession and how many are trying to fill the places of these eminent men, and succeed them in all their usefulness and honor?

I need not enter into an argument to prove that out of the many students found in our offices and attending the dental colleges at the present time but a very small number can be found who have taken up this profession because they were convinced the field presented to them an opportunity for intellectual development and scientific research, not to be found in other professions or pursuits, or where their talents, with equal training and scope for exercise would not be more amply rewarded and appreciated.

No careful observer of educational tendencies can fail to see that the craving for honor, the title of dignity and respect, and the power and emoluments, which talent and professional refinement give are not sought after in our profession at the present time by young men of intellect and ambition to the extent that is seen in other professions and pursuits. And why?

Have young men learned to look upon the practice of dentistry as a kind of pursuit, which tasks only the bodily powers—a life in which the labor is only a physical toil—where the hands alone need training and the brain left in the background to rest in ignoble disuse?

Or is it because the practice of dentistry does not mean riches and thus fails to supply the stimulus to those who would combine wealth with honor and power, in the selection of a profession.

The young men who stand upon a pinnacle of ambition and progress, and look down upon the army of “Rubber-boilers” and charlatans who infest nearly every town, city, or hamlet in the country; who are not only poverty stricken them-

selves but by their impudence and peculiar style of solicitation manage to sap the life out of those who honor their calling, will find little to encourage them to adopt this profession as a means of wealth. These mountebanks say they have alienated from our profession that enterprise, wealth and honor we desire. We see in it no chance to rise and grow and be honored and appreciated; lower industries in a monetary point, offer better promises of wealth and with much less outlay and interval between the expenditure and the return.

And certain it is that the lust for gold can not be the ruling passion in the hearts of those who enter our ranks. But who shall say that the wealth and dignity of the dental profession can be measured by the money standard; or that there is not in it an equal opportunity for active minds to amass and achieve? Who among us can afford to see this profession pass into decadence?

When the profession of Dental Surgery shall be considered as inferior to the medical, or to other arts and sciences we have allowed a distinction, both disastrous and humiliating, and when civic honors, wealth and culture have been divorced from it the profession itself will have passed into lamentable debasement.

Let our educators and leaders show to the young men that notwithstanding the rags and filth which cling to us and the odium which these pretenders cast upon us there is here a market for the noblest powers and productions of man. That as brilliant prizes glitter in the sunlight of ambition in our profession as in any other.

The whole atmosphere of dental life is warm with provocations to think.

The last 20 years have been to us as to other arts and sciences, years of intense mental application. Like the chariot of Jove in ancient story "the flame that illuminated the path of its progress has been generated by the revolutions of our wheels." The inventions of our science are a marvel of the age and the opposition to nature's laws is so great that nothing less than incessant application will clear the way for to-morrow. Let it be shown also that it is a pursuit which can ad-

minister, as well to the higher and diviner side of man's nature. It is a school in that great University where the human faculties are in constant training; a school to increase knowledge that the heart may be enlarged,—to widen the field of investigation, to quicken thought, to substitute a coarse with a finer culture, and to yield, if rightly and faithfully followed, a wealth sufficient to satisfy just and honorable minds.

There is that in our daily practice which makes it dearer to us than the coin it brings. Our labors are full of little compensations which go far toward remunerating us for its cares perplexities and trials. With due attention to the laws of nature we enjoy health and peace of mind. The absence of tumult and temptation, the enjoyment of evening pleasures and home comforts and opportunities for the love and praise of Him who "directs sanctifies and governs all worthy undertakings."

Our profession, like every other calling, is what we choose to make it.

I believe it is in the power of every educated practitioner to mould and fashion the life of some one or more young men who shall rise to eminence, and usefulness, and compete for the honors which talent brings.

And just here I consider to be the true analysis of the question.

We are too apt to receive into our offices those young men whose most promising genius we can turn into dollars and cents, while they are serving their studentship.

Is it not the duty of every dentist who has been prospered and honored in his professional life to encourage and assist some worthy young man in the cultivation of mind and heart, and in a manner that shall lead him year by year into the highest exercise of his talent, and where he can find enduring wealth and pleasure.

Has not the world also a sacred claim upon us in this respect, for what is art, for what is culture, and for what purpose is all the genius and talent of our nations, if not to benefit the many and to disseminate the fruits which they alone can supply?

EXPOSED PULPS.

WM. C. WARDLAW, D. S, AUGUSTA, GA.

I had prepared a paper upon the treatment of "exposed pulps" with my method of "capping" them, when your admirable editorial upon the subject, in the May No. of the REGISTER, appeared. The principles of treatment are there so clearly and satisfactorily set forth, (The reader is particularly referred to it,) that it will not be necessary, for my present purpose, that I should do more than briefly recapitulate them in this article, in which I wish to direct attention to my mode of "capping nerves."

The first indication of treatment, of course, is to remove and permanently exclude all irritants.

This can only be done thoroughly, by a free and full opening-up of the cavity, so that direct access may be had to every part of it. The condition of the pulp itself will then suggest the therapeutic treatment demanded. If inflamed or congested, sedatives and astringents will be required; if suppurating, Oakley-Coles treatment of pepsin is good enough. A systematic regimen may have to be instituted to meet a malarial mercurial, or syphilitic cachexia. But, in a healthy system, the main thing is to protect the pulp from irritation, and nature will come to the rescue, and very soon restore it to a normal condition.

Having, then, freed the pulp from all external irritants, and made such topical application as may be necessary, the next step is to secure this condition, to await the kind offices of nature, or, as the basis for a permanent operation.

With the pulp in readiness, what are the requirements of a nerve-capping? The material must be unirritating, a non-conductor, accurately adapted to the point of exposure, and hermetically sealing the orifice to the pulp.

You say, "these requirements are easily understood; but the substance to supply them completely is not yet obtained."

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I claim that I have such a substance, and that my mode of using it is superior to any of the many methods of "capping" pulps, that I've seen recommended. I do not say that it is not used by others, but I claim that, with myself, it is original, and that it has been very successful in my hands. Dr King's method of the batter of oxide of zinc and creosote with the os artificial is good. Dr Francis' method of note paper and balsam of fir, with os artificiel, is good; the method of the egg membrane, I have used, with happy results, isinglass court-plaster and os artificial; but none of these modes completely fill the bill.

My material is the common pink base-plate gutta percha dissolved in chloroform, in conjunction with os artificial. Notice, the gutta percha is the base-plate and has its own peculiar advantages.

With the cavity carefully prepared, the rubber dam in position, and all things in readiness, a drop of the solution taken up with an instrument or on a pellet of cotton, is to be applied to the point of exposure.

The chloroform very rapidly evaporates, leaving a thin pellicle covering on the exposed pulp. The evaporation which is very prompt, may be hastened with the air syringe, and the coating may be made thicker, if desirable, by a second application.

Upon this flooring an os artificial filling is to be placed, which will afford a firm foundation for a gold filling.

We thus have our pulp protected by a durable material which, applied in a plastic condition, has smoothly and accurately conformed itself to the surface of the pulp, is unirritating and a non-conductor, and is firmly adherent to the floor of the cavity.

With this condition of things preserved, will not nature attend to the balance? We may safely trust her. Very slight cooperation is all she needs. I have great faith in the "*vis medicatrix naturae*." Nearly any pulp, however inflamed, short of suppuration, will return to a normal condition if secured from irritation. I fear many pulps are dosed to death with escharotic applications.

The following peculiar characteristic properties particularly recommend this solution. The gutta-percha is so promptly soluble that it can be prepared upon the moment and at nominal cost. It evaporates very rapidly, acquiring the desired consistency directly. It contains so much earthy matter as to form a stratum of appreciable thickness. It is very adhesive, sticking closely to the walls of the cavity. Its pink color renders it readily visible wherever placed,—an important consideration. It is a perfect non-conductor. The chloroform is soothing to the pulp and sensitive dentine. It can be made so thick as to be easily applied to an upper tooth even. And, finally, being insoluble in the chloride of zinc, it cuts off the usually severe pain following the application of the os artificial. This last, I regard as of great moment, for I believe many pulps succumb to the escharotic effect of the chloride of zinc, which otherwise would have survived.

I had tried, several years ago, to use, in a similar manner, the white gutta-percha solution, obtained at the dental depots, but abandoned it because it evaporated so slowly, it left too thin a film, its color made it impossible to know what was being done with it, and, it was so fluid that it could not be used in upper cavities, except with great difficulty.

I have so much satisfaction in the daily use of this solution, for this, and a variety of purposes, that I beg my professional brethren who may have a prejudice against it, or in favor of something else, to just try it for a few times, and I think they will involuntarily exclaim "Eureka." I wanted to give in detail some of these other uses, but the length of this article admonishes me against it. I will merely mention some of them.

I use it, as a temporary filling in sensitive cavities, as a covering over arsenic in shallow cavities, as a temporary expedient in cavities where, for the want of light, time, or other reason, I can't make a thorough examination; in the aching teeth of timid children ("*ne plus ultra*.") in conjunction with os-artificial, over nearly exposed nerves, to intercept the chloride of zinc: to protect os artificial fillings against moisture; to stop a leak through an accidental puncture in the rubber dam;

upon a conical tooth to prevent the dam from slipping off, etc., etc. It is in fact, my "Man-Friday," without which I can not get along.

The first I ever saw of the solution, Dr E. W. Harker was using it for the protection of his os-artificial fillings against moisture, and to him belongs the credit, so far as I know of its introduction in dentistry.

Miscellaneous.

ETHER AND CHLOROFORM AS ANÆSTHETICS.

The "Boston notion" that ether is to be preferred to chloroform as the safer agent for anæsthetical purposes is confirmed by a recent communication made to the *Societa Medico-fisica*, of Florence, by Professor Schiff, abstracts of which we find in recent foreign journals. The paper embodies the results of more than five thousand experiments made by its author in order to ascertain the differences in the anæsthesia produced by these two agents. In the following points the two anæsthetics agree: they produce paralysis of conscious sensation, paralysis of the movement of the voluntary muscles, paralysis of respiration, of circulation, and, finally, of the heart and vasomotor nerves. The chief differences occur in the order in which the paralysis takes place. With ether, respiratory paralysis takes place while circulation and blood pressure remain within the limits compatible with life. In other words, respiratory paralysis precedes vascular paralysis in the case of ether, so that the vascular pressure remains sufficiently high, directly after respiration has ceased, to enable

artificial respiration to be resorted to with success ; or, in the word of the professor. "when some automatic respiratory movements have been obtained, it may be taken as certain that respiration will continue, and that the animal will live." With chloroform, on the contrary, vascular paralysis frequently comes on first, so that an amount of this agent which would be insufficient to produce respiratory paralysis will often bring on vascular paralysis, accompanied by such a lowering in the blood pressure as to render artificial respiration of no avail, as no interchange takes place between the gases of the air and those of the blood. Hence although automatic respiratory movements may be induced, life is not recalled, and respiration again ceases when artificial aid is removed. In the present state of our knowledge, it may therefore be said that the surgeon is responsible for the death of an individual by etherization, while he is not so if chloroform has been used. Therefore chloroform should be rejected, and only ether used.

A COMMON CAUSE OF APOPLEXY.

In an able article on apoplexy, in the *Popular Science Monthly*, Dr. J. R. Black, gives the following hint to brain-workers :

"A middle-aged physician said one day to the writer : 'As I was walking down the street after dinner I felt a shock in the back of my head, as if some one had struck me ; I have not felt well since. I fear I shall die, just as all my ancestors have, of paralysis. What shall I do ?' The answer was, 'Diminish the tension on the blood-vessels, and there need be no fear of tearing them in a weak place.' Now this expresses in plain terms the exact cause of apoplexy in the great majority of instances; and it is one, too, which every one has it in his

power to prevent. A blood-vessel of the brain has lost some of its elastic strength; food is plenty, digestion is good; blood is made in abundance, but little is worked off by exercise; the tension on every artery and vein is at a maximum rate; the even, circuitous flow is temporarily impeded at some point, throwing a dangerous pressure on another; the vessel which has lost its elastic strength gives way, blood is poured out, a clot is formed which, by its pressure on the brain, produces complete unconsciousness. This is the apoplectic stroke. It will be perceived that there are two leading conditions upon which the production of the stroke depends—a lessened strength in the vessel, and an increased tension on it.”

THE DIAGNOSIS OF THE “LEAD LINE.”

In chronic lead poisoning a blue line appears on the gums. But this may be simulated by other substances deposited there. Dr. Gras recommends that when we are in doubt whether a given blue-line on the gum be due to lead or not, we should excise a fragment of the gum containing the line, with a fine sharp scalpel or the point of a lancet, wash it with a camel's hair pencil, and add a drop of glycerine; if necessary, flatten it out with needles, and examine it under the microscope with a low power. If the line be due to lead, in the midst of the normal tissues of the gum we shall find capillaries injected, filled and obstructed by blackish granules. These capillaries are in loops, or semicircular, or like double hooks, the outlines varying somewhat according to the section. In very old lead-lines the capillary walls are less evident, and their outlines somewhat indistinct. If a piece of buccal mucous membrane be excised, we should use carmine with glycerine, and a little dilute acetic acid, which shows the

mucous papillæ, and the capillary network. He suggests that in fatal lead-colic, the intestinal capillaries and the nerves of the solar plexus should be examined in the same way for lead. It has long since been proposed to examine the lead-line by a simple microscope, or in other words, a one or two inch bi-convex lens; when, if in the capillaries, as the true lead-line is, it will be seen clearly to be dotted, and to follow the course of the vessels.

CARBONIC OXIDE IN TOBACCO SMOKE.

Dr. Otto Krause, in *Dingler's Polytechnic Journal*, states that he finds a considerable quantity of carbonic oxide constantly present in tobacco smoke, and that the after-effects of smoking are principally caused by this poisonous gas, as the smoker never can prevent a part of the smoke from descending to the lungs, and thus the poisoning is unavoidable. He is of opinion that the after-effects are all the more energetic, the more inexperienced the smoker is, and he thus explains the unpleasant results of the first attempts at smoking, which are generally ascribed to nicotine alone.

THE GOAL OF MEDICAL SCIENCE.

The Editor of the London *Medical Press and Circular* thus sums up the future aims of medicine:

To make our fellow citizens enjoy a healthy life, and prevent

the enormous waste of infantile life which invariably goes on in our large towns, ought to be the medical religion of the remaining quarter of this remarkable century. To live a long life, and to live all our lives, ought by this time to be perceived to be the practical teaching of all medical science; and no other consideration should allow these wholesome truths to be obscured from the view of the medical profession.

BIOGRAPHY.

Dr. M. McCarty, of Pulaski, Tenn., was born Oct. 26, 1832, in Clark Co., Ky., and was educated at Bethel College.

In the year 1864, he moved from Russellville where he then resided to Toronto, Canada, where he studied dentistry with Dr. Elliott. He returned to Russellville in the Spring of 1865, and continued the study of the profession with Dr. Jones of that city.

On the 26th of Oct., 1865, he was married to Miss A. P. Stewart and afterward, during the years 1866 and 1867, he attended one course of lectures at the Cincinnati Dental College.

In May 1867, Dr. McCarty moved to Pulaski, Tenn., where he practiced his profession until Jan. 1st, 1874, when he returned to Russellville where he died in the following March.

Dr. McCarty was a member of the Tenn. Dental Association. He was a quiet unassuming gentleman, honest and thorough in all his professional work, and but for his short life and feeble health he would have attained a high order of excellence in his profession.

S. J. COBB.

Chair. Com. on Mem. Tenn. Dental Asso.

DIED in Ashtabula, Ohio, August 24th, 1874, Dr. G. W. Nelson, aged forty years.

Expecting each month to see the above announcement in the Register, I have refrained from calling your attention to the sad fact that our profession has lost one of its tried and truest members.

Although modest and retiring to a marked degree, Dr. Nelson was efficient, skilful, industrious and ambitious to excel. Above all, he was thoroughly honest and conscientious, deserving and possessing the confidence of co-laborers in his chosen profession, and of the community where he resided. Knowing him well, as a friend, and as a professional brother, I faintly express my love for him by this small tribute to his sterling worth.

M.

ERRATA.

In the article on Dental Education, contributed by Dr. L. G. Noel, to our June No., there occurred some typographic errors which, but for the tinge of the ludicrous one of them presents, would doubtless have called down a fiat anathema upon the head of our unfortunate compositor. On page 253, 11th line from the bottom, strike out "the" before whiners.

On page 255, where the writer speaks of medicine as the "grand old mother" of dentistry, the types insist upon making her the "old grand mother."

Page 258, 13th line from the bottom, for medical read dental.

Editorial.

AMALGAM.

We made note in the August number of the REGISTER of some experiments with reference to amalgam made by Dr. Cutler, given in a paper published in the transactions of the New York Odontological Society. They were not of such character, as to impress one, at all familiar with the subject, very favorably.

On page 22, at bottom of transactions, he gives a formula by Dr. Fletcher, as follows: "Platinum one part, gold four parts, tin and silver equal quantities, 21 parts, six grains of filings took up three grains of mercury.

"In twenty-four hours lost nothing in weight and became quite hard, is white and clean looking and ought to be good for bad front teeth."

Dr. C., does not tell us whether it *is* good or not; if it ought to be good for bad front teeth, why should it not be good for those that are not bad?

Again he says in the next paragraph: "Now as to shrinkage, (as given by Dr. Chas. Tames,) I think it is more theoretical than actual in practice, if properly done."

What is the difference between theoretical and actual shrinkage? Is theoretical shrinkage no shrinkage at all? This we infer for any shrinkage however slight is actual. It is probable the doctor intended imaginary for the word theoretical. "I have to witness the first case of leakage from shrinkage, when the work has been faithfully performed." A very convenient and necessary proviso.

From the fact that about nineteen out of every twenty of all the amalgam fillings that we have examined, and they would number several thousand during the last thirty years,

we are led to conclude that there has been very little faithful work with amalgam. And yet one of the great arguments for it is, that it is so easily used, that almost any one can learn in a very short time to fill teeth with it as good as the best.

Well, in view of the facts, we are ready to grant this, for we are constantly witnessing most significant failures, and in large numbers too, from the hands of those who claim to be well skilled in its manipulation. He further remarks, "The sealing over a filling with wax, would be a desirable thing if practicable, which it certainly is not." We are thankful for the last five words, there are a great many things in this world that would be very desirable, were it not for "old impracticability."

In what way would covering an amalgam filling with wax, make it better? would it prevent contraction? would it prevent oxidation of the alloy or any of its components, after the wax was removed? Dr. C., as a chemist, knows it would not do either. But if there is anything that will make amalgam fillings better, we hope it will be used, even if it is beeswax.

On page 23 the doctor gives some experiments on the effect of heat on amalgam, by the blowpipe. These experiments elicit nothing, that is not entirely familiar to every dentist who works in metals. He again remarks, "Free or uncombined mercury remains in the filling, and does not volatilize at all after firmly setting, and no oxide or salt of mercury is found in the mouth, as mercury is not easily acted upon as shown by experiments which I made while in New Orleans, in 1871."

This statement is in marked contrast with the clearly expressed statements of nearly all the authorities on the subject, for instance, Mr. Henry Watts, in his Dictionary of Chemistry vol. 3, page 884, says: "Mercury remains unaltered when agitated for any length of time with oxygen gas, common air, hydrogen, nitrogen, nitrous oxide, nitric oxide, carbonic acid gas or alcohol; but any foreign metals that may become mixed with it, becomes oxidized by agitation in air or oxygen gas, producing a gray pulvulent mixture of the oxides of

the foreign metals and finely divided metallic mercury. On the other hand, by agitation with water, ether or oil of turpentine, or by trituration with sulphur, sulphide or antimony sugar, grease, etc., even in vacuo, mercury is converted into a gray powder, *æthiops per se*, consisting of small globules of the metal." According to Barensprung, some, at least, of the mercury in gray mercurial ointment, is in the state of black oxide, the quantity being greater the older the ointment.

Now we give this simply as evidence from high authority, as to the facility with which mercury oxidizes under nearly all circumstances; and it is in entire agreement with the experience of every one who has worked amalgams, for there is in almost every instance a "*black powder*," produced by the compounding of the metals forming the amalgam. The amount of this material produced in a given time will considerably vary, owing to the metals used, their condition, the manner in which they are brought together, as well as electrical and atmospheric conditions.

We hope to consider this more fully at another time.

On page 24, middle of first paragraph. "Now if there is any shrinkage at all in amalgam fillings it must be owing to the escape of mercury, allowing the fillings or the grains of the amalgam to contract by some cohesive force of the mercury and alloy, a cohesive force drawing them closer together which is somewhat contrary to the effect of crystallization, which I have been led to believe, characterizes this hardening process, though I am not claiming infallibility of opinion."

It is rather difficult to understand the intent of this passage, but he seems to admit here, the escape of mercury, as accounting for any shrinkage, that may take place in amalgam fillings. They nearly all do contract, therefore mercury escapes from them, either as liquid or vapor.

Evidently from this quotation, the doctor has not fully taken in and comprehended the principles involved in the hardening of amalgam, if he did he certainly would not speak of the filings or grains of the amalgam contracting by some cohesive force of the mercury and alloy.

Now filings or grains do not exist in a perfect amalgam,

crystals do; the result of the union of mercury with any metal with which it readily unites, is the formation of crystals; crystallization takes place to the extent of the combination.

Now after all the experiments the doctor has given in this paper and the suggestions he has made, we are surprised at the following statement. "Take any mouth or number of mouths, with decayed teeth in every and all stages of decay, and let any first class operator fill all decayed teeth on one side of the mouth with gold, and all on the other side with the best quality of amalgam, say all back of cuspids, the same skill and care being used in both; then turn loose the patient and await results. In my opinion, based upon observation, the side of the mouth filled with amalgam, in ten or twenty years, will be found to be in a better condition than the other." Then of course, gold as a material for filling teeth, is inferior to amalgam, for certainly that which will maintain the better condition is, the better material. If Dr. C., has full faith in the paragraph just quoted, why does he say in the immediately preceeding sentence. "Now in relation to amalgam and its place or rank as a filling, I unhesitatingly place it next to gold for permanent use." And still he says amalgam is more efficient, it will keep the teeth for ten or twenty years in "better condition" than teeth filled with gold, even when done by "first class operators."

Now we regret very much that Dr. Cutler, wrote this article, and for two or three reasons. In the first place he has failed to do himself justice, as every one, who personally knows the doctor will readily recognize; it has probably been written in great haste and so vagueness and faulty composition characterize many of its passages.

No one occupying such a position as Dr. C. does, can afford to send to the world, such a paper as this. And again the influence of the paper is upon the wrong side of a very important practical subject; as an evidence of which, many in the dental profession who have bestowed but little thought and investigation upon the subject, are using this paper as an argument for the indiscriminate, reckless and mischievous use of amalgam.

This, and such productions, gives to professional charlatans and imposters arguments for the use of a doubtful material, one by the use of which they do incalculable mischief. They refer to Dr. Cutler, as high authority, that amalgam is as good if not better than gold for filling teeth. Dr. C. certainly did not see this phase of the subject in all its force, when he wrote this article.

EDUCATIONAL.

Within a short time, the dental colleges of the country will begin their annual sessions; and the indications are that the classes will be as large if not larger, than heretofore, this at least is the case with some. This is to be expected; the importance and value of a thorough professional education and training is now more fully recognized than ever before. The agitation of the subject in the journals and in the associations, has had a good influence, drawing attention more and more to the subject.

The time is near at hand, when those who enter the profession must, in order to receive full recognition and fellowship, come with that evidence of preparation and ability, which a good corps of special teachers can give.

And in addition to this, the demand for thoroughly competent operators is on the increase, and to such an extent is this the case that it is a matter of surprise, that a far greater number of students do not enter the course of study with higher aims and aspirations than is usual. It is usually the highest object of the dental student to obtain, by some means or other, graduation; while the truth is that the great majority of students have at the time of graduation, progressed far enough, —made attainments sufficient for a foundation upon which to build a good superstructure.

Students instead of asking, In how short a time can I get

through? should ask; how much time can I spend profitably in my studies and work, in preparation for the performance of the duties I propose to assume? He who starts out with the full determination to solve the question, will be successful in what he undertakes.

The great majority of dental students should have three terms of college instruction in addition to private pupilage; and either during this term, or better, independent of it become conversant with the foundation branches of medical science.

There is room, yes urgent demand, for all who may prepare themselves as we have indicated.

Then let every student who may enter our classes this winter, do so with the fixed purpose of making the highest possible attainments, regardless of the time requisite for its accomplishments. With such students, our colleges would take hold of the work before them with warmer zeal and increased energy.

AMERICAN DENTAL ASSOCIATION.

The annual meeting of this body was held at Niagara Falls Aug. 3d—6th. This was one of the best meetings of this Association held for several years, and in making this statement we refer rather to the spirit that pervaded it, than to the discussions or papers read, though they were both good, and rather above the average of those of former meetings. There was less urging upon the Association anything like personal interests, or individual enterprises, than upon former occasions.

There was a considerable increase of the permanent membership, and very few if any withdrawals. Several of the solid members were absent, which was a cause of regret to all.

This body is from year to year gaining strength, and permanency, and will undoubtedly accomplish, all and even more than its originators and friends could have anticipated

A most excellent selection of officers was made for the coming year, indeed no better could have been made. As a presiding officer for such a body we think Dr A. L. Northrop of New York has no superior, and indeed all the officers chosen are eminently adapted to there respective positions.

We are asked why we do not publish a report of the proceedings of this body in the REGISTER.

Well we do not do it, because the proceedings will be published in full, and better than we could do it, in the volume of transactions to be published by the authority of the Association. And in the next place, two or three other journals are publishing reports of these proceedings quite as well and perhaps better than we could. And again we have on hand an abundance of good original matter, the early publication of which we think will serve the profession a better purpose, than the production of that which has already been, or will be presented to the profession through three or four different channels. We might have made a report on the spot, sent it to the printer and have issued it the next week, as a sample of unparalleled enterprise, but we doubt if that kind of a demonstration would best subserve the interest of the profession just now, and under the circumstances.

AMERICAN DENTAL CONVENTION.

The annual session of this body was held at Long Branch, Aug. 10—13. There was quite a large assemblage of the profession and a very profitable and enjoyable time was passed. From the report of those who were present, it is very apparent that the work accomplished was equal to if not better than upon former meetings of this Convention, reading good papers and excellent discussions was the order of the day. The subject of dental education, had a large share of consideration. It is always a good indication when men take hold of this subject in good earnest. The next meeting will be held in Philadelphia, and in union, we believe, with the American Dental Association.

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DENTAL LEGISLATION.

*Extracts from the Annual Address of Dr. W. C. Barrett,
President of the New York State Dental Society, held at Al-
bany, June 30th, 1875.*

Whether, in the estimation of the world, Dentistry shall be classed as a liberal and learned profession, or shall degenerate into a mere handicraft trade, rests, in a great measure, with the dentists of to-day. What shall be its future, is a question well worthy the attention of every practitioner, who has a thought above the mere bread and butter aspect of the case. To him who is of the earth earthy, it matters little what his occupation be denominated, so only that it supplies his gross material wants. If he has no tastes or aspirations, other than those connected with mere bodily demands, it is little likely that he will care for the æsthetics of his business.

Dentistry has not yet reached adult years, and its definite place among the various callings of men has not been fully assigned it. Whether it shall be considered an independent profession, or a particularity of medicine;—whether the operative and mechanical departments, shall be but integral parts of a complete whole; or within each shall be relegated to distinct, and separate spheres, is yet a question, both sides of which have their advocates. But that it is the duty of every dentist who loves Dentistry, to do his utmost toward assigning it, its proper position, no one will deny. This is a labor worthy the efforts of the best, for he will thus be assisting to determine the proper states of an art, to which the world will be indebted for much of its general welfare and immunity from suffering. In its nonage, he is shaping the existence of that, which will exert a powerful influence upon the future of those, who, for coming ages, shall stand in the relation of dentist and patient. Just here, and now, a twist of the young shrub, may result in a future monstrosity. We ought then, in what we do, to have a care that passion or prejudice do not dominate us.

There are those, who insist that dentists are medical men, practicing a specialty. Have they sufficiently considered the question, in all its bearings? In order to the pursuing a specialty, we necessarily presuppose an acquaintance with general practice, and a subsequent divergence from the consideration of all parts of a science alike, and the exclusive devotion to a particular branch. The greater includes the less, but a part cannot comprise the whole. Medicine is a science, and he who only studies a subdivision of it, cannot be said to be versed in medical science. He may thoroughly master some portion of it, but doing this, he is only partially a medical man. If he would take rank as a physician, he must first master general medical science, and not one of its branches. An oculist may be pursuing a specialty, but not a specialty *in medicine*, till he first become a general practitioner; that is, until he graduates in medicine, he cannot practice, either generally or specially in that profession. How can we avoid the conclusion, that an attempt to bolster

ourselves up by clinging to another profession, is an error on our part, and that the resentment, shown by the medical profession, toward our rather impertinent claims, is but the exhibition of proper spirit on their part. That we are nearly akin, they cannot, and will not attempt to deny; but that we, without any such thorough, and radical training, as they themselves have submitted to, should be admitted within the precincts, which for ages has been so jealously guarded, we may not expect. There is but one door through which the outsider may enter the ranks of medicine, and he who attempts to climb up by any other way, will be justly denounced as a thief, and a robber. Our course in the past has, in many instances, been ill-considered. We have attempted to gain recognition, by claiming something more than mere consanguinity with medicine! We have endeavored to shine by a borrowed light! With our separate schools, our distinct literature, and our peculiar degrees, which medical colleges are not competent to grant, we have yet desired to shelter ourselves under another organization. As if admitting our inability to stand alone, we have asked that we might lean against the structure of our neighbor.

There is a higher ground, a more noble position—which we may, and should occupy,—that of a separate, and distinct learned profession. We have schools, and a literature, equal to any, with a practice demanding special literary and professional training. These are subjects, closely connected with our practice, that are vital to the interests of mankind, and which can alone be properly studied, and their mysteries solved by those who have had the advantage of our professional training,—questions in science, which we alone are competent to answer. Then, with our colleges specially devoted to the training of those who would master the mysteries of our guild, with a separate literature, and a distinct mission in the broad field of science, what hinders one taking the position which rightfully belongs to us—that of a separate and distinct profession? Nothing! except a full understanding, and proper appreciation of our duties, and a thorough

organization; for a simple agglomeration of particles, does not constitute a work of art.

It is urged with truth, that we shall take precisely the rank to which we, as dentists and scientific men, are worthily entitled. True enough perhaps, but *when* shall that position be accorded us. Harvy and Jenner were for many years denounced as quacks, and old established professions are not, usually, quick to acknowledge new truths. It is our duty to substantiate our claims to a portion of the field of services, not arrogantly, but modestly, and firmly. We possess all the elements of a profession, but so long as we are but an unorganized mass, with no responsible head, we cannot write our true professional influence. We have schools, a literature, learned men, enthusiastic students in science, whose form is not circumscribed by the boundaries of state or county, but a mob, even of officers, is not an army. For proper and effective organization, there must be some central heart, from which shall radiate, and toward which shall convey, all the life currents, so necessary to the support of an organism. Heretofore, the efforts for the advancement of Dentistry, have been individual and desultory. While each was anxious that his chosen profession should secure the respect of others, there has not been a necessary harmony of action. All have desired recognition from our near kindred, medicine. But there has been no unit for their acknowledgement; there has been no responsible head, to which the avowal might be made. Themselves thoroughly organized in schools, with clearly defined lines of demarcation, they have hesitated to give the hand of fellowship to an irresponsible, disorganised aggregation, however respectable otherwise. Having a settled habitation, they are distrustful of the dwellers in tents. There are many denied courtesies for which we must look to Law, and we wish even to hold up our heads in the presence of theology. But if we except the profession in a very few of the states, we have no settled existence. We are of such a recent growth, that our proper position has not been determined. Medicine dates from remote ages.

Hippocrates was a physician, and there have been doctors, ever since men were subject to disease. Law dates from the time when, for mutual protection, men first banded themselves together, and sought the services of some Moses or Solon, to lay down maxims by which their inter-communications might be governed. Theology is the outgrowth of natural principle in man, which continually looks up, toward something not subject to the infirmities of our weak natures; the natural religion of the soul, ever seeking for something worthy its adoration. Medicine may degenerate into Charlatanism, and Superstition: Law become the fawning sycophant, or the shyster; and theology be degraded into priest-craft. Yet in spite of all, whenever men have become an aggregation, there has been law to define social relation, medicine to heal bodily infirmities, and a priesthood to stand, as far as might be, a connecting link, between man and that mysterious Power, which in some form, all nations have worshipped. No people so savage, but has had its professors of Law, Medicine, and Divinity, from the brutal debased African tribe, or the wild American Indian Nation, whose superstition clothes their Medicine man, or Prophet, with the knowledge, and power, and influence of all others up to those races, highest in the scale of civilization; who have made such proficiency in scientific knowledge, that scarce does our life time suffice to master the literature of either. But no where, is either reckoned a profession, unless there be established some barrier, clearly marking its confines, and within which the ambitious youth is not admitted without a fully demonstrated fitness. Among the Indian tribes, it is required that the candidate for that office of combined Physician, Judge, and Priest, should have been devoted to that special purpose from infancy. Modern medicine demands the evidence of proper scholastic and professional training, in the form of a well earned diploma, before the neophyte is admitted to any kind of fellowship, or place in the ranks of his chosen profession. Law demands the examination of a candidate, under the responsible authority of a properly constituted court, and even when once admitted

within the sacred precincts, the proper officers are armed with authority to thrust him out, on proof of subsequent unfitness. Every country minister must be inducted into his place, with due formality, and after close scrutiny, not only into his literary and professional, but moral qualifications. He must *believe* according to an established formula, and even his conscience, is placed under surveillance. It is only ourselves, who, claiming to be a profession, have established no line of demarcation within which a man is orthodox, and beyond which he must be professionally damned. Every man, woman or child, who mounting the housetop, proclaims himself for herself a dentist, is to a certain extent fellowshipped, and to him we all, high and low, extend the professional designation "Doctor." There is no absolute criterion by which those who claim a place in the ranks are to be judged. If we are indeed a specialty in medicine, it must be found in the diploma of Doctor of Medicine. If we are a profession by ourselves, there should be some recognized, legally accepted diploma, that shall determine a dentist's status. All our colleges should be empowered to grant but that one diploma, in course, and that should be the rule of measurement of a man's acquirements. Certain it is that some, without that evidence of scholastic training, will be better qualified for practice than others who have gone through the curriculum of the schools; but inasmuch as some standard by which to judge men must be erected, these must, until they have demonstrated their fitness before the properly constituted authorities, be classed with other outsiders. But instead of this uniform and recognized degree, we have the painful spectacle of one of the leaders in dental reform, one of our oldest and most honored universities, of whom we had hoped great things, setting up a standard of its own, and confusing the scientific world, by establishing a hitherto unknown degree. Instead of assisting in the thorough organization of our profession, which was the ostensible purpose in commencing their dental school, this honored seat of learning has but added to the already too great demoraliza-

tion. The great desideratum among us is uniformity, and we are becoming more confounded.

If we would really become a profession, these things must not be. Thorough organization must establish the boundaries of dentistry, and cut off all communication with outside dental barbarians. To be continued.

IRREGULARITIES OF THE TEETH AND THE BEST MEANS OF CORRECTING THE SAME.

BY GEO. W. GRAY, D. D. S.

Read before the Oregon State Dental Society, June 30th, 1875.

Mr. President, gentlemen and members of the Oregon State Dental Society, the subject assigned me is one of no ordinary interest; it is worthy of earnest thought and careful investigation, and is at present attracting the attention of the members of the dental profession throughout our country. Our aim should not be merely to remedy existing defects; but to act upon the principle that "an ounce of prevention is better than a pound of cure." If we can succeed in educating the public mind in reference to the means of shaping and giving symmetry and beauty to the teeth, those natural organs; for preparing the alimentary substances for the process of digestion and can secure their preservation and perfection, we will have deserved the gratitude of an appreciative public. The mission of our honored profession, is not merely to make money, but to do good in relieving pain and disease and doing all we can to secure perfection in these important organs of our physical being. We for this reason must investigate the causes of irregularity and disease that

we may intelligently apply the best means of correcting the same. Allow me now to direct your attention to this subject for a very brief period while I present a few thoughts for your consideration and discussion. As to the exact period in the history of our race when these irregularities in the development of the teeth and jaws first made their appearance, causing so many hideous deformities in the expression of the human face, divine history does not furnish us any account. That they do exist and have existed for many generations past, in certain localities and among certain classes of people is an indisputable fact; and, according to the best observation I have been enabled to make during a period of fourteen years study and practice on this coast, have been unable to discover any very marked cases of irregularity, in the development or arrangement either of the jaws or teeth of the aboriginal tribes inhabiting the slopes of these western shores; and from the best evidence I have been enabled to obtain am led to conclude that these irregularities in the development of the jaws and teeth are seldom found among the aboriginal tribes of this or any other country; but exist more generally among the highly civilized, cultivated and refined classes (or upper tens) inhabiting the larger towns and cities of the world, but more especially of North America. Now the question arises why should these classes become any more liable to these irregularities than the savages or those occupying the more humble walks of life? Cannot a departure from the fixed laws of man's natural being as established by an All wise Creator be traced as the great or primary cause of the irregularities.

When God created man in physical perfection and beauty, and placed him in the garden of Eden, and told him "of every tree of the garden he might freely eat; but of the tree of knowledge of good and evil thou shalt not eat." Did he mean what he said? most assuredly. Why? Because God undoubtedly understood what was for man's good, not only in a moral point of view but physically as well, and knew if he ate of fruit of that tree he would not only be breaking his command and thus be committing a great moral wrong which would

be a gross sin in itself, but it is also probable that he would be taking into his system a kind of chemical element contained in that evil fruit that would not harmonize with the natural laws governing his physical man and would thus be the means of bringing about physical disease and death, which would continue to be entailed upon the human race of all coming generations. Was man willing to obey the great law of his natural being by eating those things that Infinite Wisdom saw would result in his good for all time to come? No, indeed, he saw the fruit, that it was pleasant to look upon, and good for food and that the eating thereof was calculated to make one wise, and so put forth his hand plucked and ate, regardless of consequences. And are we not continuing to follow the example set by our first parents by eating whatever is pleasing to the eyes and good for food whether in violation of nature's laws or not, and thus through a long series of generations have attained these deformities in the alveolar arch and irregularities of the teeth; a natural consequence or result of each violation. To illustrate, you will notice according to the following table by Berzelius that the bones are composed of the following chemical constituent elements.

Organic Matter.	Gelatin and blood vessels	33.30
	Phosphate of lime	51.03
Inorganic or Earthy Matter	Carbonate of lime	11.30
	Phosphate of magnesia	1.16
	Soda and Chloride of Sodium	1.20

According to the above table, one third of man's bony frame work is composed of organic matter or 33.3 per cent. and two thirds inorganic or earthy matter or 66.7 per cent. Now in order to keep this frame work healthful and in working order you will readily perceive the necessity of of keeping up a supply of those bony elements, or mineral compounds by way of the digestive apparatus to cause a proper development of those various parts and organs; and wherever there is a deficiency in this supply there must necessarily be a like degeneracy in the parts it was intended to supply. Are we not to conclude according to the analysis made by chemists of the present day, that the bone producing elements

are very materially cut off in many articles of diet, as generally used by our fashionable livers of the present age. I will refer you to only one article, that is wheaten or fine flour bread, an article usually regarded as the staff of life, but which is more frequently made an article of death, particularly to our teeth and bony frame work. To illustrate allow me to quote from an article in the January number of Johnston's *Dental Miscellany*, of 1875 by Ephraim Cutter in which he says, that Mr. Sharples the well known chemist analyzed for him a quantity of the Peerless flour. He found 0.55 per cent. of mineral ash, a little over half of one per cent. He stated also "that the proportion of ash in the whole grain varies from 1.65 to 2.50 per cent; so that the diminution of mineral food varies from two thirds to four fifths. In other words by the use of fine flour, mankind loses from two-thirds to four-fifths of the elements that go to make up teeth and bony structure." You may argue that if this falling off in the supply of the inorganic or earthy matter would cause the alveolar arch to become small or narrow, there would also be a proportionate diminution in the size of the teeth, and thus would not become a source of irregularity. This objection at first thought seems quite plausible, but when we consider the fact that some of the worst, or most marked cases of irregularity that falls under the care of the dentist, are those in whom there is not only the narrow shriveled bar shaped alveolar arch, but also a very perceptible diminution in the size and shape of the teeth, such an argument amounts to nothing. I have noticed several cases of this nature in my own practice. One in particular now presents itself to my mind. Mr. A., about 35 years of age, enjoying ordinarily good health, of nervous temperament, seemed to have the developing power in the teeth so deficient that a number of his teeth were undeveloped altogether, while others were stunted and dwarf like in appearance, and though there was an abundance of room in the alveolar arch for them yet they came in very irregular, in almost all conceivable shapes and conditions possible, owing to these deficiencies the person was compelled to wear a partial set of artificial teeth quite early in life. And is this not

likely to be the case in hundreds and thousands of instances in the not very distant future if the present dietetic system is continued! Stock raisers are very careful to study and ascertain as far as possible, the kinds of grain or food that are best calculated to develop all the good qualities of their animals, and if the bone is deficient they are sure to feed with such grain, vegetables or whatever substances contain those mineral salts more largely in order to facilitate their growth and development more fully. Now is man of so much less importance than a beast, that he should over-look all these important and valuable suggestions and be suffered to go down in premature decay and disease! Or should he not endeavor to regulate *his* diet in such a manner as will be calculated to build up and supply these deficiencies in his bony frame work, and thus lay the chief corner stone towards correcting these irregularities in the development of the jaws and teeth. In fact consider this *one* of the best, if not *the* best means of overcoming or correcting most of these irregularities in the teeth. That there are other causes of irregularities in the development of the jaws and teeth, besides this deficiency of bony material, is undoubtedly true. Such for instance as the marriage of two persons, one having very large and prominent jaws and teeth, while the jaws and teeth of the other are very small and narrow. The children of such parents frequently inherit the large teeth of the one parent and the small jaw of the other, then there would not be room in the arch for the teeth to take their places properly and they must of necessity be irregular. In such, and perhaps many other cases, mechanical means have to be resorted to, for their correction. In the application of these means there are many things to be taken into consideration. Such as the general health of the patient, nature of the alveolar processes, age, etc., etc., from 12 to 17 years being generally considered the best time to proceed with this class of operations. Many of the more simple forms of irregularity may often be corrected by the patients themselves, (by very simple means) if properly instructed. One very good way where there is any of the superior incisors, or even a canine standing a little out-

side the line of the arch, is by the use of a little stick cut the proper length with a notch in one end in which the tooth may rest with the weight of patient's head, the other end of stick resting on a table (or bench if at school) during hours of study or when reading or writing. By this method if carefully followed the protruding tooth will generally be driven to its place in the arch in a few days or weeks. Rubber tubing will accomplish much, also the gold and silver bars and silk ligatures will be found excellent. If it becomes necessary to enlarge or widen the arch the frequent application of rubber between the teeth will frequently accomplish the desired end. The jack screw is also very convenient for this purpose. If plates must be the final resort, the one as devised by Dr. J. B. White will prove excellent, also the one invented by Dr. A. Westcott may be used advantageously. Plates of various sizes, shapes and styles in connection with silk ligatures and and india rubber tubing or rings will be found very useful in the correction of the irregularities of the teeth, each case presented being different from every other. The operator will be compelled to weigh all the leading phases bearing on the subject and accept of such principles and modes of procedure as he may consider best calculated to accomplish the desired result.

TREATMENT OF DEAD TEETH.

RY R. R. FREEMAN M. D., D. D. S.

Read before the Tennessee Dental Association.

Advanced operative dentistry has more consideration for the living than the dead. Their great aim is preservation of life and restoration to health. You will find for the last few

years voluminous and exhausted essays directing the practitioners how to save exposed pulps. Numberless modes are set forth as to how this may be done, and the advocates of each are zealous in their views, claiming almost unlimited success in their peculiar method. It is to be recognised that great advances have been made, and many teeth are preserved to-day, pulps and all, the attempt at which has been heretofore considered useless, notwithstanding our attainments and the dissemination of knowledge among the people, we are called upon daily to treat dead teeth rendered so by neglect, accident, or maltreatment.

The death of a pulp may arise from numerous causes; that most frequent being the penetration of caries into the pulp cavity permitting the contact of irritating and extraneous substances, among other causes may be enumerated, irritation from thermal changes.

Inflammation induced by mercurial poisoning or salivation, mal-articulation inefficient nutrition, a too vigorous use of the mallet, heroic wedging etc. Under certain constitutional conditions of a patient, a large filling may induce the death of a pulp when under more favorable circumstances no evil would result, a not unfrequent cause of the death of a pulp arises in our very attempt to preserve it, sufficient care not being taken to secure proper conditions before capping, also the want of knowledge as to the remedy or application indicated.

A dead tooth at best is but a frail affair. It is only retained by nature as it were by sufferance, and must sooner or later succumb.

Our best directed efforts can only look to the rendering of it as inoffensive as possible in which if we succeed it may be retained a servicable member for years.

We will for convenience divide the teeth into two classes. The anterior or those most prominent to view and the posterior or molars. We will first consider those anterior. These teeth are treated for three reasons. 1st, to relieve pain. 2d, to restore lost parts thus rendering articulation and mastication more perfect. 3d, for mere appearance.

If one of these teeth be dead and of long standing with no external opening through which gases are escaping and your object is restoration of color, you may with care complete the operation without exciting inflammation. If there be no external opening, open up the cavity by drilling through the basilar ridge directly into the pulp chamber. Let the opening be sufficient to allow reaching every portion of the canal, especially the corneau or horne like portions toward the cutting edge.

In removing the debris from the cavity do not push any of its contents through the foraman. If you do, it will be sure to excite inflammation, neither permit the instrument to pass through and wound the soft parts or trouble will be sure to follow. By careful measurement from the outside a tolerable accurate idea as to the length of the canal is obtained. In passing the broach up the canal it will strike a slight shoulder usually found at the apex of a root, thus indicating the depth you should go. This however is not an infallible guide, especially in young subjects, for the foramen, may be so large as to permit your instrument passing through without meeting this obstruction. After the canal is thoroughly cleansed and disinfected introduce a small pleget of cotton, moistened with *creosote* on a slender broach, leave the cotton in position and seal the cavity with Hill's Stopping or gutta percha to exclude extraneous substances; let this remain for a day or two, when if all is well, proceed to fill the root with gold or tin foil. I prefer the tin as I seem to be able to manipulate it more to my satisfaction. I invariably use the rubber dam when operating upon dead teeth from *first* to *last*, which when properly applied, gives full command of the situation. The next step is the restoration of the color of the tooth as nearly as possible. You need not expect to give a dead tooth its normal color, though it can be rendered much less objectionable to view. In life a tooth is supplied with a circulation of liquor sanguinious, which gives it a bright and lively appearance. In death this circulation is shut off, at least in the enamel and dentine of the crown, giving it that opaque look, the peculiar characteristic of a dead tooth.

Where a tooth has recently died, there may be considerable infiltration especially in young subjects where the dental tubuli are large. This condition may be the more easily overcome, for the same reason, owing to the largeness of the tubuli the infiltrations can be more readily removed.

Never attempt to bleach a tooth until you have the root filled, then with rubber dam applied there is no danger of injuring the soft parts. Ordinarily the excavator, warm water chloride of zinc and alcohol will remove most of the discoloration, where the red corpuscles have been forced into the dental tubuli oxalic acid is recommended to remove the hæmagine. This is used in a strong aqueous solution permitting it to remain in the cavity a few minutes, when, after securing the desired effect, wash out with warm water, then fill immediately with orychloride of zinc when this is sufficiently hardened cut away and make a gold filling. There is a certain class cases in which the slightest disturbance will cause secretion of pus, which will sometimes continue to discharge through the cavity of decay regardless of every care and treatment. In such cases cleanse thoroughly, inject iodine and creosote and fill the root at once with tin foil, then by leeching, applying iodine and aconite equal parts, or a hot roasted rosin, you may disperse the inflammation, and no farther troubles ensue. If however this will not suffice lose no time in making a direct opening through the gum down to the apex of the root you can then inject the iodine feeling assured it will reach the desired part and break up the pus secreting membrane. You may introduce a strand of floss silk into the artificial opening permitting the end to protrude a little, this will act as a seaton, when inflammation has sufficiently subsided remove the silk and permit the parts to heal.

In molar and bicuspid teeth where you can get direct entrance into the root canals the same treatment is indicated as in the front teeth.

Where there are curved and compressed roots all you can do is to make the best effort possible to cleanse and fill them. Such roots as you are satisfied you can fill completely,

do so permanently, then fill the body of the tooth with Hill's Stopping, if the case remains satisfactory for a month or two then complete the permanent filling, with the assurance that the tooth may do good service for a long time to come

ADDRESS OF B. OSCAR DOYLE, D. D. S., ON RETIRING FROM THE PRESIDENCY OF THE
KENTUCKY STATE DENTAL ASSOCIATION AT LEXINGTON, June, 3d. '75.

Gentlemen:—Custom has made it obligatory upon the presiding officers, in retiring from the executive chair, to deliver an address appropriate to such an occasion, but first of all before taking a retrospective glance of the year which has past, or considering matters which belong to our profession, it is incumbent upon us to acknowledge our thanks to Him whose eye is ever upon us, and without whose assistance, all human efforts are vain and profitless. Let us therefore give God the praise, for all the privileges and blessings which we enjoy, and ask his influence to be with us, to guide us in our deliberations, and when the annual meeting shall have closed to remain with us in our private walks.

The association and the members are one year older than when we last had the pleasure of meeting, and we may reasonably ask: Has this time wrought any material change with any of us? None will deny that the science of dentistry has advanced in this time, while there has not been very many new discoveries in any of the departments, yet many of the new theories have been tested, and *investigation*, seems to be the prevailing idea. So we may reasonably expect the future to be rich in valuable discoveries, and improved appliances, all of which will increase our store of knowledge, ex-

tend our usefulness, and mitigate much of the suffering connected with the practice of our specialty. The progressive members of the profession find an arduous task to keep pace, with the many practical and theoretical ideas advanced, and can only investigate, and hold fast to that which is good. Prominent amongst the experiments of the past year is the attempt to produce a vulcanizable gum, from one of the products of the common milk weed, this experiment while not yet perfected is in such a state of forwardness as to promise a perfect substitute for Rubber, without any of its objectionable features, and at the same time a perfect relief from the onerous exactions of the Rubber Co. Monopoly.

The experiments which have been conducted to ascertain the reliability of amalgams as a material for filling teeth, have resulted disastrously to nearly all of the different amalgams, subjected to the tests, and proves beyond cavil, that outside of the deleterious effects, supposed to result from the metallic mercury in the filling, that this material is almost totally unreliable, as an agent for the arrest of decay, on account of the shrinkage which takes place during consolidation, and in no case can permanent results be expected, unless the greatest care is exercised during its introduction into the cavity, and the material thoroughly condensed, and burnished, after consolidation has taken place. It seems about time that this material should be placed on the "retired list" it having so signally failed to prove itself valuable, except when manipulated with almost as much skill, and the expenditure of fully one half as much time as is necessary for the introduction of gold.

Tin foil has stood not only experiment, but the test of time, and answers well in all cavities not exposed to attrition.

But all of these and other experiments and discoveries which have come to notice during the year, are no doubt familiar to most of you, but before leaving the subject of improvements, I desire to bring the subject of Barnum's Rubber Dam, to the notice of those who have never learned its use. The many improvements in appliances to facilitate its use, many of which have been perfected recently, make its

use comparatively easy, it needs no recommendation when it has once been used, operations, that without it are below the medium, or cannot be performed at all, are with its aid performed with a certainty of success to be obtained by no other means. My advice is "try it."

So far as the membership of this association is concerned, peace and quiet has reigned since our last annual meeting. It is my desire officially, to call attention to the deplorable condition of the large portion of the profession, in this state, it is well and personally known to every member, that empiricism," stalks abroad through the length and breadth of this commonwealth, seeking victims, and that the grossest mal-practice is perpetrated in the name of dentistry by men calling themselves "doctors," and who are entirely destitute of either medical or dental education, there is surely some remedy by which this evil can be lessened. The medical profession have a state law, which requires practitioners who are not graduates, to undergo an examination before a board of examiners appointed for that purpose, and this has caused many a self styled "doctor" to seek pastures new. In our profession, every man who chooses to style himself "dentist" immediately has the tittle of "doctor" bestowed, either by himself or a generous public, and the regular profession makes no distinction, between those who receive degrees from competent authority, and those who appropriate it unlawfully, all are spoken of as "doctor." In the present day of advancement and opportunity for education, there is no excuse whatever for any young man entering the practice of our specialty, without a thorough and practical education, to be obtained in any of our dental schools, and it is certainly the duty of the regular profession to discountenance; all such attempts as well as the unlawful appropriation of titles. But the great trouble has always been, that the members of the profession, who have endeavored to fully prepare themselves for honorable practice are content to settle down, happy in the confidence of their patrons, and with time so fully occupied, by that portion of the public, who appreciate *skill* and *integrity*, that they have no time to attend to such matters as

these, and some even believe that the "empiric" serves a valuable purpose by way of comparison.

One year ago, at your hands, I received this, the highest in your power to bestow. In my official intercourse with the members I have endeavored to fulfill, to the best of my ability, the duties devolving upon me, friends and others alike; have been treated with that courtesy due from an official, and in surrendering the chair to my worthy successor, I have the proud satisfaction of knowing that it is surrendered free of tarnish. And now my brothers of the association, I will close by again thanking you for the confidence and honor confided to my keeping, and hope that each and every one of you, may be eminently successful in your efforts in this our chosen profession, that we may have the pleasure of meeting and mingling our thoughts together for many many years, and discord may never be heard in our councils, but that all our works may redound to the glory of God, the good of our fellow men, and the elevation of the dental profession.



DENTISTRY AND DENTAL PHYSICIANS.

BY CHAS. H. EVANS.

Dentists have been represented by a writer in the *Cosmos* to be like a flock of sheep. If one of the sheep leaped over a wall all the others would follow; this reminds me of the following incident, it appears that lately a flock of twelve hundred sheep were passing along the edge of a precipice, the leader accidentally slipped off, and the whole twelve hundred jumped down after him and perished.

Now it would be singular if one person who thinks himself a leader in dentistry, should by a few flashy speeches induce

a large number of dentists to set themselves up as dental physicians, by ignoring entirely the mechanical part of dentistry: because this formerly the principal part of the art, is at present over run by cheap bases and patents. This course in the present state of public opinion would only result in starvation to the majority of those who try it; for this reason, the public are not prepared for it, could not understand their position, and would not pay or support them.

At present, dentists, the world over, are looked on as but little more than skillful mechanics, and treated as such by the mass of the people. Some will say, educate the people! the people do not care to be informed in regard to dentistry. Even the plain common laws of health are fearfully disregarded, with the consequent loss of life. Why should we expect that dentistry should form an exception?

It will not do to let the mechanical part of dentistry slip out of the hands of the educated dentists; the intelligent portion of the public are looking to them for perfection in this department, and will continue to do so for many years to come. This has formed a part of the foundation on which the science and art of dentistry has been established and must continue to be in demand, for it forms the principal part of the dentistry required by the mass of the people.

If cheap bases for a time have cast a shadow over this part of our art, rather than it should be lost, let more thought and study be brought to bear on this work. Are all the treasures of knowledge exhausted? has science nothing more to give? is there nothing more to be learned? I believe there are magnificent results yet to be attained for the seeking, and the future will yet produce them in this part of dentistry.

It appears to me, that I can see a glimpse of this future, as applied to dentistry, by improvements and inventions in the arts similar to the following: a process has been recently perfected in which glass is rendered very tough and not easily broken; what could be neater than a gum colored, almost malleable glass plate. Take enough of such achievements as the above and the work is done.

We believe that in the not far distant future there will be produced by the dentists of course, a cement for filling teeth, enamel color and susceptible of a polish like healthy live enamel. It will require a most elaborate course of study and experiment to produce it; it must, and it will undoubtedly be produced.

It all rests with the dentists to decide what dentistry shall be, not one part, but each and every portion of it.

Some contend that dentistry requires so much science and skill that it should be divided. The uneducated public look on it as a trade, hardly that, easy, light, and genteel, and which most any dry goods clerk can learn in a few months, being a short road to riches (!) and gentility.

The demands of public opinion, although appearing at times somewhat "long-eared," cannot be ignored with impunity at present; that is, if a person depends on the patronage of the mass of the people for support, or the good will of patients, of course no one desires the contrary.

I know an educated physician who advised a dentist to charge one dollar for advice and examination. If any one is of the opinion that he could get wealthy as a dental physician, let him charge this moderate fee, he will soon be able to form a correct opinion on this point.

Dentistry is none too large for it to receive the necessary respect which it should command. Elevate it so as to compel respect for its attainments; the love of gain, trade and competition, have performed this service for porcelain teeth so that they are now very nearly perfect. Now, is it impossible that the plates for their support, may not be made their equal.

We are not unaware that there are now in use some approximations to this; there must be an adaptation to the wants and necessities of the public in every respect, for the work to command their appreciation. When this want is supplied its merits will create a demand for it.

Dentistry at present is somewhat in the condition of a besieged fortress, where one part is being stormed, by the demands of the mass of the people for cheap base, and the

claims of those possessing the patents for the same. Now, the question is, shall this weak part be given up, or shall *men* enough be put in to hold it?

RANDOM THOUGHTS.

BY NEMO.

The most casual thinker and reader of dental literature can not avoid being impressed with the unsettled state of the therapeutic principles of dentistry and the conflicting ideas of our less informed men as to the most desirable mode of procedure and treatment of pathological conditions of the mouth. And noting the longings of many for a different state of things, will unavoidably come to the conclusion that there is a higher plane for all the votaries of dentistry. And it will never be attained by legislative enactments or traducing others and puffing ourselves. The only way to throttle quackery and elevate dentistry, is for every progressive dentist to make himself superior, scientifically and ethically, to the groveling ones. "Let deeds not words be the rule."

The coming dentist will have to be more conversant with literature and science (especially medical) than is required at the present day to entitle him to the honors of a properly organized dental college. An infinitesimal knowledge of anatomy, physiology, chemistry, pathology and therapeutics will not satisfy an intelligent and discerning public.

A grave delusion has taken hold of the minds of many who have received the degree D. D. S., or some other pseudo-dental title that they are par excellence above all others. Such dupes are cursed with the leprosy.

The model dentist must have a vocabulary, larger than suf-

ficient to mystify an ignoramus, he must eschew all such bombast—as polarization of the brain—by spiritual illumination to differentiate between male and female caries—or ignore by one sweep the rich legacy of thought and research handed down to us by great and good men of the past.

“And, like a peacock sweep along his tail” (pig tail?) Such sayings and doings mark the charlatan.

Our periodical dental literature is susceptible of improvement, much of it is very flippant and nonsensical, for instance the declaration that the saving of a tooth is a greater cause for exultation than the saving of an eye, the information that we have in this country a dentist descended from a titled English family, How we apples swim, etc.

How few dentists comparatively, when business or social intercourse throw them into the company of an educated M. D., and the conversation turns upon medical topics, but feel like pigmies. This is wrong and a tacit acknowledgment of a superiority of knowledge of those subjects with which every dentist should be familiar technically and theoretically. He should by his mental acquirements and gentlemanly deportment command the unqualified recognition of the medical profession as a specialist.

A word especially to the younger dentists who are dissatisfied with their present attainments. Mark out a course of study which will be a life's work, be decided, allow no blandishments to sever you from your course, bearing in mind, “Pluck is a hero, luck is a fool.” Four books are indispensable in the work, viz: Webster's Dictionary, unabridged illustrated edition, Dunglison's Medical Dictionary, revised edition, the Bible and Shakespeare, other books and minor details if you possess any will-power will suggest themselves. If the course hinted at is pursued earnestly and perseveringly for one year, you will be enabled to say. “Labor itself is pleasure.”

“Be silent, always, when you doubt your sense
And speak, though sure, with seeming diffidence.”

Proceedings of Societies.

THE TENNESSEE DENTAL ASSOCIATION.

The ninth annual meeting of this Association was held in Nashville, June 24th and 25th, in the United States Court Rooms, corner of Cedar and Summer Sts., President E. S. Chisholm presiding and R. R. Freeman Secretary.

After transacting the usual preliminary business of the Association a lengthy paper on Extraction of Teeth, by Dr. S. P. Cutler, of Memphis, was read.

The subject was now open for discussion.

Dr. Morgan: The statement that mercury produces absorption of the alveoli and gums where no pyalism has been produced is an assertion that can not be proven. It may be so but it is a mere inference with no data to support it.

Dr. Noel: My observation is that the demand for artificial teeth, since the introduction of Nitrous Oxide, has diminished rather than increased, and this I take to be an evidence of the increased appreciation on the part of the public of the operation of filling.

Dr. Cobb: I am satisfied that thousands of teeth have been sacrificed since the introduction of anæsthetics. I am confident that the statements of Dr. Cutler, on that point are correct. That the demand for anæsthetics is diminishing, is due more to the fact that the best men in the profession are discountenancing their use than to any ruling of fashion. I hope some action will be taken by this Association at this meeting showing its disapproval of the use of these agents.

AFTERNOON SESSION.—FIRST DAY.

The Association was called to order at 3 p. m., by the President and the discussion of Dr. Cutler's paper was resumed.

Dr. L. C. Chisholm: If there is ever a time for the extraction of a tooth it is when the nerve is dead.

Dr. Taft: This is in one sense an important subject and ought to receive the attention of every dentist. With me it is a study how to avoid extracting rather than how I can extract the greatest number of teeth. There is a class of patients who do not appreciate the worth of their teeth, and who are unwilling to pay for their treatment. In such cases nothing can be done but extract. This is one condition for extracting. Such patients are not only unwilling to pay the dentist for his efforts, but would not appreciate any thing but immediate relief of pain. Those who properly value their teeth, will secure the best service for their preservation. The dentist in operating for such a patient should only enquire; can I save the tooth. If we will endeavor to save the teeth instead of extracting, we will be surprised at the small number there will be to remove. Sometimes a month passes and I do not extract a single tooth.

Dr. Cobb: We should do every thing that can be done before resorting to the forceps. I am afraid my friend Dr. Chisholm is too heavy on dead teeth. I am afraid he'd rake them out too close. I have in my mouth a devitalized tooth that has done good service for many years and expect it to last several years longer.

Dr. Morgan: There is quite a number of persons of strumous diathesis, who can not retain devitalized teeth long, till suppuration and alveolar abscess take place. This class is largely represented by the Mulattoes; patients free from scrofula, of sound solid osseous tissues are the best subjects for the treatment of dead teeth. Patients of bilious temperament with dark skin and hair and eyes are, when free from scrofula, also good subjects for these operations. Every dead tooth will ultimately give rise to trouble. They may last five ten or twenty years but trouble will come.

The subject was passed and Dr. W. H. Morgan read a

lengthy paper on "Dentistry in Tennessee," in which he gave a detailed account of the rise and progress of the profession in the state.

Dr. Taft: I am glad that it has come into the mind of Dr. Morgan to write such a paper. I would be glad if every member of the society, who is aware of any historical matters that have not been made public, would contribute such facts to be added to the paper. Perhaps all present are aware that a history of dentistry in the United States is in course of preparation. It is desirable to call to aid in this work, the older members of the profession throughout the country. It is intended to use this paper in that work. There are many valuable facts liable to pass out of recollection, hence the necessity for such a work.

Dr. E. S. Chisholm read a paper on "Treatment of Exposed Pulp."

Dr. S. J. Cobb; There are many cases in which there is no chance to retain a filling after the capping of oxy-chloride has been introduced. This is one of the cases in which Dr. Cutler's plastic fillings would be required.

Dr. Taft: The ultimate preservation of a tooth depends upon the vitality of its pulp. The dentine receives its nourishment through the pulp. A gradual process of hardening is going on in the dentine from youth to old age, and a gradual diminution of the pulp canal by the elaboration of calcarious material by the pulp. Of course this hardening process is arrested as soon as the vitality of the pulp is destroyed. Devitalized teeth are undergoing deterioration from the beginning the best of them break down and ultimately crumble. Living teeth may last for forty years after being filled, but from five to ten is the average duration of pulpless teeth. Large shallow cavities or cavities on the distal side of the inferior molars such as referred to by Dr. Cobb should not deter one from undertaking to save the pulps. Don't work by guess, cut away until you can have full view of the work. In exposed pulps the formation of secondary dentine takes place oftener than we suppose and a good agent to favor this is lactophosphate of lime.

The Society adjourned to meet at 9 a. m. next day.

MORNING SESSION.—SECOND DAY.

The Association met according to adjournment, and was called to order by the President. The discussion of Dr. E. S. Chilholm's paper was continued.

Dr. Morgan: A number of gentlemen here were at a loss to know how Dr. Taft sees into certain distal cavities. This is very simple and plain to me. He uses the rubber dam and shuts out the saliva. I have had the same trouble but since adopting the rubber dam have had no such trouble.

Dr. Taft: I did not suppose when we were discussing this subject yesterday that there was one here so far back as to try to operate without the rubber dam. No one can operate as well without it as he can with it, no matter what he uses.

Dr. Ross: I would like to call your attention to a tooth I have, in which the nerve was found to be alive though it presented all the symptoms of a dead tooth, had even supurated. I would like to know if a tooth, with a living pulp, could have an abscess.

Dr. Taft: I have never seen a tooth, with a living pulp with an abscess.

Dr. Beach: I extracted a tooth some time since, which had given rise to trouble on account of an abscess. The nerve when examined gave all the appearance of health, but when examined with a glass a small granulation was found which had set up inflammation that had extended to the periosteum.

The subject was passed and Dr. R. R. Freeman read a paper on Dead Teeth. He said he directed his attention toward retaining the teeth in the mouth in an inoffensive condition as long as possible. He recommended filling the roots of the bicuspid and molars with Hill's Stopping.

Dr. Beach: I have obtained good results from filling the roots of dead teeth.

Dr. Morgan: In many instances when the tooth is tender before the filling is half malleted in, all trace of soreness disappears.

Dr. Taft: This is an important subject. The dead tooth is

better than no tooth at all, and therefore we must do all in our power to save it as long as possible. The idea of one course of treatment being sufficient for all teeth is nonsense. We must learn the condition of the tooth and then, guided by a sound judgment, select that which is best suited to the case. A new agent, salicylic acid, has just been introduced for the treatment of dead teeth; it is a disinfectant and antiseptic; has no odor and a sweetish taste; has been used in Germany for more than a year, but has been introduced into this country within the last few months and is giving most signal satisfaction not only in dentistry, but also in general surgery.

Dr. W. L. Dismukes read a paper on Finishing Fillings, in which he called to mind the importance of finishing fillings thoroughly. Thought thousands of fillings lost yearly on account of not being properly finished up. He exhibited a little contrivance of his own, made of emery paper varnished on the smooth side to prevent softening by moisture, cut round, the size of gun wads, to be used on a mandrel and engine.

Dr. L. C. Chisholm expressed himself pleased with it, so also did Dr. Cobb, Acree and Dr. Sandusky who thought he could improve it by doubling the paper so as to have two cutting sides instead of one.

A paper was next read by Dr. L. C. Chisholm on Mechanical Dentistry. He thought gold the best base for artificial teeth, was opposed to rubber, especially the suction plates. Thought there was less expansion and contraction in the Boston Star when vulcanized than any other, and therefore thought it the best.

Dr. Morgan: I agree with Dr. Chisholm that the teeth can be better articulated on gold than rubber, and also that gold is the best base for artificial teeth.

Dr. Acree: I never have any trouble from shrinkage and contraction such as Dr. Chisholm speaks of in his paper. I make my casts of block tin, when I have a full set to make and have never had a failure where I had good casts. I make shallow air chambers for I think thick ones a curse. I have never had any expansion, contraction or sore mouths.

Dr. Cobb; I do not like the air chamber, never saw any

value in it. I removed a plate in Louisville some years ago, which had caused sore mouth, the air chamber of which was one quarter of an inch deep.

Dr. Acree: I have never seen a case of sore mouth caused by wearing a rubber plate when the plate was well fitting.

Adjourned to afternoon session.

AFTERNOON SESSION.—SECOND DAY.

The Association met according to adjournment and resumed the discussion of Mechanical Dentistry.

Dr. Beach: Celluloid has proven a failure as a base with me. I have communicated with Mr. S. S. White's, Council, and he gave it as his opinion that attaching teeth to a plate with celluloid, would not be an infringement upon the Good-year Dental Vulcanite Company's patent.

Dr. Taft: From twenty to thirty celluloid plates have been made in our office and not a single failure. When you have bestowed the same attention upon celluloid as upon rubber, you will meet with as much success. It is better than rubber as far as I can judge. More than fifty per cent. of all the mouths from which I have taken plates in the last two or three years have been more or less diseased. I am surprised to hear gentlemen here to-day say they have never seen a case of sore mouth caused from wearing a rubber plate. I have not used rubber as a dental plate for three or four years. Have always been opposed to its use, from its introduction.

The subject was passed. Dr. S. J. Cobb read a paper on Dental Education. Much was said concerning Dentistry as a specialty of medicine. Said he knew there were many irregularities in the profession, but did not want to be wiped out on that account, and closed by calling to mind the importance of having a dental department in connection with either the Vanderbilt University or University of Nashville.

Dr. Morgan: I have been interested in this subject for a number of years and do not think now the time for such an Institution. Not eight per cent. of all the dentists in the South have been to a dental college. Out of two hundred and fifty in this state there are not twenty graduates,

Dr. Cobb: One point in the paper I would like to hear discussed. Are we willing to abandon the name of dentistry.

Dr. Taft: I do not regard this question as important as some do. Not more than one half the physicians can stand a good examination on anatomy two years after leaving college. I do not mean to say they do not make advances. There are more hard working students in the dental profession than in the medical. The greatest demand now is for improvement in those who are already in the profession as well as for those who are coming into it.

The Association granted Dr. Taft permission to publish in the DENTAL REGISTER such of its papers as he shall deem worthy.

The election of officers for the ensuing year took place and resulted as follows:

R. R. Freeman, President.

T. E. Beach, 1st Vice President.

W. L. Dismukes, 2d Vice President.

Henry W. Morgan, Recording Secretary.

L. G. Noel, Corresponding Secretary.

A. E. Herman, Treasurer.

J. C. Ross, W. H. Morgan and S. J. Cobb Executive Committees.

Dr. E. S. Chisholm, the retiring President, read a short address thanking the Association for the courteous manner in which they had treated him.

On motion, the Association adjourned to meet in Nashville, the third Wednesday in June, 1876, unless otherwise ordered by the executive committee.

NEW JERSEY STATE SOCIETY.

The N. J. State Dental Society held its fifth annual session at Long Branch, July 6th, 7th and 8th. President Brown, of Mount Holly, presiding the first day occupied was with the election of the following new members: Drs. L. S. Marsh, H. S. Parke, D. H. Thickstun, Wm. E. Frances, Chas. W. Meloney, W. W. Dooland and C. M. Merritt. The Board of Examiners report that during the year past they had examined and gave certificates to practice to the following dentists: Drs. Wm. E. France, F. J. Leonard, A. L. Strecher and R. J. Reed. The session of Wednesday opened with the President's address from which we make the following extracts: Giving an interesting resume of the year, he spoke of amalgams as having renewed attention given to its use by careful tests and experiments, that amalgam properly prepared and used will preserve a tooth for years, is beyond a doubt, improperly used is worse than useless. Celluloid has taken great strides the past year in public favor, and is fast superseding the use of rubber. Beautiful in color, strong in texture, easy of manipulation, it bids fair to take the place of all other materials. As a base for artificial teeth, it appears to be just what was wanted to relieve us from the obnoxious Rubber Company.

I think every dentist who has learned to use it will never go back to rubber. Our law regulating the practice of dentistry is working well, though being much more stringent than the N. Y. Law, yet no fault has been found in its workings. The urging upon the society of prohibiting any member receiving a student for a less period than three years and making it obligatory upon the student to attend two courses of lectures and graduate at some dental college, and I would advise the passage of a resolution that after three years, no one should be received as a member who had not complied

with the same. The address was well received and elicited considerable discussion. The 1st essay by Dr. T. B. Welch, of Vineland, was then read and well received. Extracts, as follows: Some hurry through their dental operations from selfish motives, they are in haste to be rich and therefore anxious to make every hour of labor count the greatest number of dollars, nearly all such come to grief as they should, some who are naturally nervous and excitable are not aware of a want of care it being a misfortune and the sooner they overcome this weakness the better workman they will be; others hurry through from a desire to be considered fast workers, continually boasting of how many teeth they can fill in an hour and how many teeth they can extract in a minute, this is foolish, we should work as rapidly as we can consistently with accuracy, the greatest pride of the true workman is in the perfection of his work and he is generally modest in his claim. Let our reputations speak of honor, dignity and success. Dr. C. S. Stockton of Newark followed with an Essay on Dental Education of which the following is a synopsis, the 1st point was the extreme haste of the Profession in manufacturing Dentists of their students.

The early and thorough education of him who proposes to enter the Profession of Dentistry was demanded; the eagerness of the American People to enter business life and the haste to get rich are the glory and vice of America.

The uneducated man and dentist go out in the world and are done. Letters, Philosophy, and the Sciences have no interest to him and to their delights he will forever remain closed. And he claims that he is not appreciated at his true worth it is his own fault for if he enter the circle of the educated he must educate himself to come to their standard-there are so many men not blessed with the best qualifications and the number has been so increased that the time has come that societies like this should make their voices heard. I would have no one commence the practice of dentistry at this day until he is a graduate of a Dental College unless he has spent two years in the office of a competent Practitioner.

Colleges are blamed in a manner for the way they make Dentists, in a measure they are unjustly censured; the colleges have done more for the profession than all other means combined. Young men are taken by some of our Practitioners sent at once to college without any previous instruction and the college in eight months is expected to make thorough Dentists of them. Let us cherish our State Society as I know of no better way of promoting dental education in N. J. than by faithful attendance upon its sessions, what possible ambition to high deeds can a man have who lives wholly within himself, let us then as our means to higher professional attainments cherish this association educate each other and the Dentists of N. J.

Dr. Welch agreed with Dr. Stockton's citing instances that we all require a difference in time to gain the practical and theoretical education necessary to become skillful practitioners.

Dr. Hayhurst considered all general laws bore hard in certain cases, but better it be so than to open the flood gates to incompetency.

Dr. Kingsley thought the pupil should study 3 years and pass through college as the paper recommends. Dr. J. R. Cobb differed entirely and thought it should not be obligatory upon students to attend dental colleges and spoke of the incompetency of graduates for every day practical work upon leaving college they wishing to perform all operations in the manner and way they did in college. He denounced the system of selling diplomas, having proof of a certain Philadelphia college granting a diploma which the N. J. Board of Censors refused to grant because the candidate was wholly incompetent, the diploma of the college, in his estimation, is no guarantee a fitness to practice.

Dr. Hanks defended the college system but condemned their abuses and thought the present system of dental and medical colleges wrong. Dr. Hayhurst, Ex-college professor, cited the thoroughness of the examination and did not

consider that the Board of Censors had as good an opportunity and the time at command as a college faculty.

Dr. C. A. Meeker recommends that the examinations of the Board of Censors be so thorough that the diploma of the Society will be an honor to the holder, though the candidate holds a degree of D. D. S., also as Dr. Stoekton says, to work for the elevation, education and character of the Society. After considerable discussion by others the subject was closed.

Dr. Geo. H. Perine, of New York, by special request, spoke at some length upon the use of the Galvanic Cautery, for oral surgery; Dr. Perine said there was advance in all departments of science, particularly so in our own department, dental surgery. He claims that the introduction of the cautery, (he being the first person who has applied that particular cautery in oral surgery,) is the advance of the age, and he strongly recommended its uses, if the cautery be employed for obtunding sensitive dentine he would advise its application with great care and only in cases where the instrument can be applied directly to the tooth to be operated upon, guarding the instrument from contact with any other tooth, the action will be instantaneous and effectual. Dr. Perine illustrated the use of the battery for operations in oral surgery and presented the instrument he uses. The advantages he set forth are, that the operation is instantaneous painless and without shock to the body which it does not in any degree effect unpleasantly, the application is easy, free from hemorrhage, (which is of great moment in surgical operations in the mouth) and finally the reparative process is rapid.

Next followed Dr. J. R. Goble, of Hoboken, who read a highly interesting paper on the cause and cure of the absorption of the alveolar process taking the ground that local irritation was the primary cause preceded by salivary calculus, diseased teeth, etc. The cure of which was to remove the irritation with delicate instruments, keeping the necks free and well polished, and recommending the use of a weak solution of chlorate of potash. He deprecated the custom of so much scrubbing the teeth, citing numerous instances of absorption and denuding of the enamel.

Prof. Abbott, of New York, said he was well pleased with Dr. Goble's remarks, and agreed with the doctor in every particular and hoped all dentists would instruct their patients in the use of the tooth brush, he also by special request, spoke of the use of Salicylic Acid for use in disease of the mouth, it having strong antiseptic properties and withal being perfectly harmless. Dr. Kingsley and others recommended the use of Aconite and Iodine in saturated solution for inflammation and for use after filling nerve cavities. On motion, the President was authorized to welcome to N. J., the American Dental Convention which meets at Long Branch in August. Adjourned.

MORNING SESSION, JULY 8th.

The Invention of Dr. Chevalier in regard to an improvement in metallic bases was delegated to a committee of Drs. Stockton, Meeker and Pimey, to report at next meeting.

The Dental Luminary, a small pamphlet designed for distribution by dentists among their patients, which would enable the reader to discriminate a good from an inferior dentist. The committee spoke very highly of it and it was ordered printed by the Society provided enough copies by individual members would be ordered to make it practicable. Atlantic city was decided upon as the next place of meeting. Drs. Goble, Stockton, Welch and Hayhurst were elected delegates to the N. Y. S. D. S.

Dr. J. W. Hayhurst, of Lambertville, next spoke on the best method of inserting partial sets of teeth. In taking the impression plaster was considered the best article in use. The contact by the plate on the natural teeth was by him not considered necessary, the atmospheric pressure being sufficient when the impression was perfect, every thing depended on making a perfect fit. Dr. Dibble thought an air chamber not necessary, made all his plates without them Dr. F. W. Barbour gave his method in using wax and plaster in difficult under cuts. Dr. Meeker asked essayist the best place to put the air chamber, the doctor thought in a high roof, near the end of the plate, and in a flat roof, near the centre,

deprecated the custom of having so many angles to them. Dr. Stockton considered gold the best for partial sets and continuous gum for full sets. As the subject had received considerable attention and latitude the debate was closed and Dr. E. F. Hanks invited to read his essay on Amalgam.

After Dr. Bogue's able and exceedingly thorough exposition of amalgams under every condition that we may be called upon to use them, it seems to me presumption to say anything on the subject unless one can say something new. But I have the consolation that I am not alone in this, for so long as dental societies exist, just so long will we be called upon to give a re-hash of what has been said and done before.

When I took the subject, I intended to go much more fully into this matter than I have until I saw Dr. Bogue's article which covered the ground so completely and much more scientifically than I ever hoped to do, that I have contented myself with making only a few experiments.

I would suggest before all things that we be candid in what we say in the discussion that may follow, and say exactly what we mean and not exactly what we do not mean on this important subject. Time and time again have leading men in the profession denounced before dental societies the use of amalgam in any manner or under any circumstances, returning home to use it privately in their daily practice. Amalgam has simply been unfashionable, and the young men with reputations to make have been warned that they could not afford to speak favorably of it. Now, all that is changed. Amalgam has become the rage. The journals as well as the teeth are filled with it, and voluminous papers are read before learned societies about it.

While amalgam was under the ban tons of it were made, but no one used it. The manufacturers said they sold it to the dental depots: the depots said the dentists bought it; but the dentists said they never used it. [Laughter.] If this was true, what a tremendous stock some of us must have, now that amalgam has grown to be so popular! But now that

Fletcher, Bogue, Hitchcock, Cutler and others have taken up the subject and proved that amalgam is not the bugbear we have been taught to believe it was, I fear that foolish and unskillful men will now push the use of it to extremes, as they have rubber, heavy foil, and a great many other things that are very useful in their proper places.

Amalgam is no better nor worse to-day than it has been for years, with perhaps a few exceptions, and in my opinion it should retain the same place it has always held in the hands of good operators—that is a cheap substitute for gold in posterior fillings, as rubber and celluloid are cheap substitutes for gold and platinum for artificial dentures, only to be used when the patient is too poor or too mean to pay for the better article.

I would also suggest amalgam for badly decayed teeth, where the expense would be great and the success of the operation doubtful.

The object of most writers has been, I think, to test by actual experiment the theories and assertions advanced from time to time on this subject, and to find out the exact scientific basis that amalgam has to rest its claims upon as a useful agent in our daily practice, and not to make converts to the use of amalgam as some unreasonably think.

The following is a specimen of the groundless assertions that have been recklessly made from time to time.

Dr. Payne in the Chicago Medical Journal speaks of the poisoning of thousands of people all over the world from corrosive sublimate generated in the mouth from amalgam fillings.

This assertion is pretty effectually answered by the certificate of analysis of Prof. Chandler, of Columbia College addressed to Dr. Bogue.

“Sir: The samples of saliva in which various alloys (amalgams) had been digested, submitted to me for examination contain no mercury in solution.”

These samples of amalgam, with the teeth in which they were placed, before being submitted to Prof. Chandler, had

been immersed for three months in various acids so powerful as to nearly dissolve the teeth.

There are three samples of each of the following amalgams before you: Arrington's, Townsend's, Lawrence's, "Extra," Fletcher's and Kearney's. I do not see any great difference in the working of these amalgams, with the exception of Extra amalgam which works poorly.

In conclusion I would say if almost any amalgam is used with care, teeth can be filled to preserve them without injury to the health; but as for putting it on a par with gold I certainly do not except the few cases already mentioned.

The paper was generally discussed and the remarks coincided with the views of nearly all present.

The last essay by Dr. De Lange was of importance to the profession generally, and was awarded a vote of thanks. It was entitled *Celluloid vs. Rubber*, and was as follows:

Bad are the goods when two masters chase one man. Good for the man. Two men have two workmen. Good for the consumer. So it is with Rubber and Celluloid.

Before 1870 we used but one material, we employed but one workman; since we have had others toilers, and ergo, other substances; for, if "necessity is the mother of invention," competition is certainly its father.

It is due to the earnest efforts of the Messrs. Hyatt, that Celluloid has reached even its present state; as the compound we have now, certainly has more plasticity, and less inflammability than the collodion obtained by the process first patented.

In experimenting with camphor and soluble cotton, they were mixed and casually squeezed in the hand—when it was found that they compacted and showed signs of combination. It was previously known that a solution of camphor in alcohol was a solvent of the soluble cotton, but this proved that alcohol need not be used; and, that camphor was, under proper conditions a perfect solvent.

It was then ascertained that a chemical combination took place; and a short time after the first experiment, by heating the material to a lower temperature than necessary to melt

camphor, a lump of solid celluloid was produced ; subsequent experiments have developed the fact that a smaller quantity of camphor could be used, thereby making better plates, and almost doing away with the unpleasant recollections of last winter's clothing.

One of the greatest objections against celluloid, formerly urged by the vulcanists was, as we have said before, the unpleasant camphor taste, and we believe this is still put forward by some of the non-experimenters. This difficulty has been well nigh, if not entirely, overcome within the last year or two.

In working this substance no disagreeable odor is noticed, as there doubtless is in rubber; in fact this is quite a point against rubber, for in manufacturing it, sulphur is used, and we all know what a delightful perfume results from the combined effects of escaping sulphurous gas and heated caoutchouc. Not only is the escaping gas offensive, but it is unhealthy; a fact which could never have been stated of celluloid, even when in its condition of greatest imperfection; the odor of camphor, though not pleasant to all, is beyond denial unhealthy to none, and even this is passing from us. The rubber retains its obnoxious scent even after completion.

That the new compound is more agreeable to the mouth, is easily judged from the remarks of the patients, and the general satisfaction that is given.

It is much lighter than rubber, and decidedly more susceptible to a high polish when we have the set complete; and together with these cleanest properties it also refrains from heating the mouth as the old material does.

The whole substance has now properties of lightness, toughness and strength, together with a resisting power, which vulcanized goods never had, or never will possess.

Celluloid now is entirely different from that which was first manufactured. Dentists who made use of it at that time had obstacles which they thought they would never surmount. These failures induced a number of the experimenters to toss their celluloid, and apparatus, to the waste pile, and return to their first love—Uncle Josie.

We quote from the "Cosmos" of March, 1872, the remarks of Dr. Earnes, as follows:

"Sufficient time has now elapsed to prove, we think, the utter worthlessness of this material as a base for artificial teeth, and we publish the following list of experimental cases with this base, with the results, as our own experience, and upon which, in part, we have our opinion of its merits.

After which follows a long and most melancholy list of failures, both in color and texture. His plates ran from pink to dark brown and then warped and shrunk to such a degree that sometimes the plate would not touch the center of the arch by one-fourth of one inch. It appeared that all of his cases were returned in about three weeks or less. Unfortunate man.

No dentist ever thinks of the failures made and the trouble caused by rubber on its first introduction? I do, for at that time I acted as an agent for the Goodyear Rubber Co. and had more, much more difficulties in introducing it than the agents for the celluloid have had in bringing their base before the public.

Dentists howled at the idea of using rubber in the mouth: they said it was unclean, that it smelled badly, and I well remember several prominent members of the profession, among whom was Dr. Elisha Townsend, of Philadelphia, (now deceased,) stating that he would not have anything to do with a material injurious to the mouth.

The feeling was so cogent that some dentists advertised that the new base would not be used in their establishment, but they did use it evidently, as it was the only means of self protection, and with the exception of the metals, it held undisputed sway for a period of more than fifteen years.

But now another base has interfered with the even tenor or its ways, and in celluloid it will meet its Brutus.

Does it not argue strongly for the excellence of the new material, or the perniciousness of the old, that this composition should, in less than five years stand the mighty rival of rubber, with its twenty years of experience, and "millions in it."

Editorial.

CELLULOID.

Yes, celluloid is gaining favor with the profession very rapidly; and it is proving much better than any ventured to anticipate, one year ago. Many are now using it to the exclusion of all other cheap bases for artificial teeth. As now furnished, it is doubtless equal to, if not superior to rubber. It is more pleasantly and easily manipulated. The objection that seemed formerly to exist, viz: warping, change of color, and deterioration, have been overcome. There seems to be little doubt but that it will, in a short time, wholly supersede rubber for dental purposes. To those who have not yet used it we unhesitatingly say, give it a trial.

THE LIST OF SOCIETIES.

It is desirable to keep our list of dental societies as accurate and complete as possible. Frequently, complaints come to us that the record is not at all correct, and this will necessarily be the case unless due notice is given of the changes that are made. It is very easy for the secretaries of the different societies to give us notice of the changes in their respective societies, as soon as they take place, and they will appear in

the next issue of the REGISTER. If we are at the expense and labor of keeping up this list, it is certainly not asking too much that the officers send us correct statistics, so let us have them accurately and promptly.

EASTERN INDIANA DENTAL ASSOCIATION.

The fifth annual meeting of the Eastern Indiana Dental Association will be held at Richmond, Ind., Tuesday and Wednesday, October 26th and 27th, 1875, commencing at 9 a. m., in Y. M. C. A. Rooms.

DISCUSSIONS.

1. Dental Literature.
 - A. Code of Ethics.
2. Treatment of Diseased Gums.
3. Treatment of sensitive dentine and pulp exposures.
4. Filling Teeth.—
 - A. Gold building vs. Gold stuffing.
 - B. Amalgams, Hill's stopping, Oxy. chlo.
5. Instruments and Appliances.
6. Celluloid as a base for Artificial Teeth.
 - Miscellaneous business after each subject.
 - Clinics 8 A. M. to 12 M. on Wednesday.
 - Election of officers at 3:30 p. m. Wednesday.

Members are requested to have Essays or preparation for oral discussion on the different subjects.

Dentists not members and physicians are invited to attend our sessions. Prominent dentists have been invited and are expected to be with us.

EXECUTIVE COMMITTEE.

W. F. Shelley, New Castle; Milton H. Chappell, Kingstown; C. S. Wilson, Cambridge.

This meeting will be one of unusual interest, and the largest assembly since its organization.



ASSOCIATION.

The Michigan Dental Association will hold its Annual Meeting at Cook's Hotel, Ann Arbor, commencing October 12th, 1875, at 12 o'clock M., and continue three days. The newly established Dental College being located at Ann Arbor, it has been deemed advisable by a large number of the profession to change the place of meeting from Grand Rapids to that City. It is hoped that all members of the profession will be present, as subjects of great interest will be brought up for consideration. All are cordially invited.

The following are the Committees appointed to report on subjects mentioned.

Anatomy,—J. A. Watling, W. L. Andrews, W. P. Morgan.

Physiology,—G. L. Field, C. E. Corbin, J. H. Woolley.

Chemistry,—C. S. Case, W. R. Cutler, J. W. Stom.

Hygiene,—D. C. Hawxhust, E. Hunter, D. W. Smith.

Pathology,—G. R. Thomas, H. H. Jackson, R. S. Bancroft.

Therapeutics,—J. C. Parker, J. A. Robinson, E. P. Cummings.

Surgery,—B. T. Spelman, E. G. Douglass, A. T. Metcalf.

Education,—W. H. Jackson, J. Lathrop, J. W. Finch.

Thomas R. Perry, President, W. D. Tremper, Secretary.

IN MEMORIA.—DR. AARON BLAKE.

At a special meeting of the St. Louis Dental Society held on Tuesday Evening, August 24th, at the residence of Dr. Eames, the following preamble and resolutions of respect to the memory of Dr. Aaron Blake who died at his residence in St. Louis, Aug. 23d, Aged 65, were unanimously adopted.

Whereas, It has pleased Our Heavenly Father to take from our midst, our beloved professional brother Aaron Blake who, by his integrity and arduous endeavours to accomplish his labors honestly and faithfully had endeared himself to his fellow members of this Society, and gained the universal respect, esteem, and regard of his professional brethren, therefore.

Resolved, That the St. Louis Dental Society deeply deploring his loss will revere his memory, and endeavor to follow his worthy example.

Resolved, That we deeply sympathize with the widow of the deceased in this hour of her great affliction and that we will manifest our affection and appreciation of his virtues by attending his funeral in a body.

Resolved, That a copy of these proceedings be spread on the minutes of this society, and a copy of the resolutions be forwarded to the widow. Also that a copy be sent to the Dental Journals for publication.

H. H. KEITH, Sec.,

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[No. II.]

PATHOLOGY AND TREATMENT OF EXPOSED
PULPS.

BY DR. W. B. KNAPP.

Read before the Indiana State Dental Society.

Previous to entering upon the pathology and treatment of exposed pulps, let us first consider the histology of the teeth and their physiological aspect briefly.

The teeth are composed of three hard elementary tissues, enclosing a soft fleshy mass in the center; the enamel, dentine, cementum and pulp.

The enamel forms the covering of all the free portion of the tooth, it is the hardest tissue in the body, containing in the adult about 95 per cent of earthy matter. In structure it consists of a series of hexagonal prisms or fibres running with a somewhat wavy course, but generally at right angles

with the periphery of the dentine of the crown, upon which they rest with one extremity, the other being free.

The enamel seems to be destitute of nutrient vessels and nerves; and Salter says: "There is every reason to believe that the enamel is wholly destitute of vitality, that it undergoes no nutrient changes after it is once formed, and that it is only influenced by the physical and mechanical changes to which it is exposed."

There are some facts that lead me to doubt the correctness of this theory. If it is true, why should the enamel of an adult contain more earthy matter than that of a child? Or, as all physical and mechanical agencies must be external, why should the enamel of a devitalized tooth deteriorate so much more rapidly than that of a live one?

Tomes while saying nothing in regard to the vitality of the enamel, does say: "Although the fibrils have attained their full length some time before the tooth is cut, the development of the tissue can scarcely be regarded as matured until after that period; for at the time a tooth passes through the gum, the enamel is comparatively soft and fragile, and it is only after the lapse of some months or even years, that it attains its full degree of hardness."

The enamel is thickest upon the masticating surface of the tooth, it terminates at the neck, where it is overlapped by the cementum.

The dentine or tooth ivory, which constitutes the bulk of the tooth, is a tissue of bony hardness, about 75 per cent of its weight consists of earthy matter. The minute histology of the dentine has not been fully demonstrated, and the diversity of opinion among authorities is such, that if one is right others must be entirely in error, and vice versa. But in general terms, the dentine consists of a series of minute tubes radiating from a central cavity containing the pulp, between the tubes is a hyaline homogeneous mass, called the intertubular tissue. The tubes pursue a wavy or spiral course, are dichotomous, the branches anastomose freely and terminate at the periphery of the dentine in loops or fine net work. These tubes do not, it is generally believed, pass into the en-

amel. But Tomes says: "In the crown of the teeth, they terminate by forming loops, or become too minute to be traced, or pass into the enamel and are lost." Again: "By the extension of the dentinal tubes into the enamel, and into the cementum, a connection is formed more intimate than the mere superposition and adhesion of the one to the other would have established, and the more so as the three tissues are developed from three different formative pulps." In the roots however it is different, as they frequently pass into the cementum, particularly near the apex, uniting with the lacunæ of the cementum.

Salter produces a very fine argument to prove that these tubes are filled with a dense fluid or plasma. In this he is supported by Koelliker and others. But I prefer and shall adhere in my paper to the theory of Tomes, namely, "That each dentinal tube is tenanted permanently by a soft fibril, which, after passing from the pulp into the tube, follows its ramifications," but, whether plasma or fibril, all agree that it is the office of the tubes to convey nutrition from the pulp to the hard tissues.

Primary dentine is nonvascular except as an abnormal condition, but secondary dentine is highly vascular. "Dentine exhibits vital phenomena which show it to be a part of the living body. First, it is sentient; second, it is susceptible of nutritional changes; third, it takes cognisance, so to speak, of injuries done to its outer surface, leading to a renewal of ivory growth on the pulp surface."

Cementum is a structure closely resembling true bone. It covers over the roots of the teeth as the enamel does the crown. It contains 70 per cent of earthy matter, and is generally non-vascular; cementum presents the vital phenomena even more markedly than the dentine. It is formed from the periosteum after the manner of true bone, and from it receives the most of its nutrition and nervous influence, also receiving some from the pulp through the dental tubuli which to a limited extent penetrate it. The periosteum is a fibro vascular, non-elastic connective tissue, lining the socket of the tooth and surrounding alveolar process. "The pulp is

a soft mass, which exactly fills the chamber in the crown and fangs of the tooth, it is of a pinkish color and is rather translucent. It contains a large amount of fluid and dries to a mere film, nerves and blood vessels abound throughout its structure."

The teeth are generally regarded as a cutaneous production, being developed from sub-mucous papillæ, enveloped or overlaid by mucous or epithelial membrane. The papillæ consist of a homogeneous, subgranular blasma or matrix, in which vessels and nerves are gradually developed, forming the dentinal pulp. The epithelial cells of the overlaying membrane become columnar in form, assuming the position ascribed to the enamel prisms and form the matrix of that tissue. This matrix seems to be destitute of vessels and nerves, and I agree with Garretson in thinking that calcification is carried on by an endosmosis from the dentinal pulp, of earthy matter, which is deposited in these cells. This view, although not the generally received one, explains some changes which take place in the enamel of teeth, that are fully erupted, that I think can be explained in no other way.

In studying the development of the pulp, it is found that upon the formative pulp, there is arranged a series of columnar cells, constituting the membrana-eboris from the distal extremities of which minute tubular threads project, and as the dentine forms from without inwards, these are prolonged centripetally, a homogeneous blastema separating them, and being calcified with them. These prolongations are the dentinal tubes and the blastema is the inter-tubular tissue. These tubes as I have previously stated, I believe to be tenanted by soft fibrils. Thus it will be seen that the enamel, dentine and cementum, are built up by a formative action of the pulp and soft tissues. This is a normal function of these parts, commencing with the first centers of ossification and continuing actively, until the full development of the tooth has been reached. Here it ceases with the soft tissues, excepting that the cementum receives its nourishment in part from its surrounding membrane. Not so however with the pulp, which continues throughout its life, to not only afford nutriment to

the tooth, and remove the debris, the result of the change continually taking place in all organized tissue, but also continues its formative function, gradually changing the constituents of the tooth, adding mineral salts until the teeth become very much denser and less subject to those influences that promote decay.

So well understood is this, that the argument is frequently used with young people, that if their teeth can be saved a limited period, they will probably have little trouble afterwards.

Also slowly diminishing the diameters of the pulp cavities and the canals of the roots, this continues to such an extent, that under purely normal conditions, in old people, these will frequently be found to be nearly obliterated. But exciting causes often stimulate the pulp to greater than merely normal activity. Where abrasion of a tooth is so great as to cause the nerve to be unfavorably affected by external agents as pressure or thermal changes, the pulp rapidly retires before the thickening walls with which it lines its chamber, as an additional barrier and protection, and the tubuli over the weak point are closed by calcific deposit, forming a structure harder than ordinary dentine.

If the enamel be removed by the file or disc, from a portion of a tooth, and that portion be kept perfectly cleaned and polished, the dentine soon presents a semi-transparency, and becomes much harder in its texture, the tubuli have been obliterated to a considerable depth by calcific deposit, due to the formative action of the pulp, through the fibrilla. So well is this understood, that some dentists prefer to remove superficial decay and shallow cavities with the file, disc or chisel, to excavating and filling. Some even advocate the permanent separation of the teeth by these means, to prevent the retention of destructive agents at the points of contact, insisting that exposed dentine will become by calcific deposit, so hard and dense, that if kept clean, it will resist decay better than enamel, wherein contact upon the proximate surfaces of the teeth.

In slow decay, in cases of arrested decay; and in cavities that have been filled with metals, we often find a belt or zone

of considerable thickness, where the tubuli have become obliterated and the dentine is much denser than normal. In excavating cavities for the purpose of filling, we often find underneath the debris of decay, a new layer of dentine, distinctly separated from the overlaying decayed dentine, by well marked lines of separation, there being frequently an apparent union between the two over considerable space. In these cases the decay had undoubtedly reached the pulp, but it being protected from the influence of external changes, by the overlaying mass of decayed matter, has secreted lime salts, in sufficient quantities, to build a new wall of healthy tissue, for its protection from the approaching enemy. How often or under what conditions this may occur, I have no means of knowing, but a sufficient number of cases have been observed and noted by careful and reliable operators, to establish the fact and I think, I have given the correct explanation of them.

Thus it will be seen that this delicate organ has considerable power of self-protection; and of raising new barriers, to resist the encroachment of decay, and where the decay has not advanced so rapidly as to expose it.

When the pulp becomes exposed, if left to itself, it soon becomes irritated and takes on destructive inflammation, leading to the death of the organ, and finally to an abscess. But a few years ago these were considered sufficient grounds to justify the extraction of the tooth. Now no one thinks of such a procedure.

Abscesses can be treated and healed, dead pulps removed, the pulp cavity purified and filled and the tooth saved for a considerable length of time, sufficient to justify the expense and labor. The length of time these dead teeth can be kept, depends upon many modifying conditions as the density and quality of the tooth structure, the nature of the secretion of the mouth and the amount of pressure they are required to resist in mastication.

But as a rule, necrosed teeth, especially the bicuspid and molars, soon become very friable and are easily broken down and lost. On the other hand, so long as the pulp is preserved,

the tooth retains its normal condition and may last during life.

Now can not skill and science surround an exposed pulp with conditions so favorable, that its life will be preserved? Or after skill and science have exhausted their resources, will irritation continue, resulting in inflammation and ultimate death of the part?

It must be confessed that down to a late period all efforts to save exposed pulps, have resulted in pretty uniform failure. Nor is it difficult to understand the reasons why they failed.

The cap was usually a thin plate of some hard substance, such as lead, tin, gold, rubber or quill, and placed it as carefully as might be over the exposure, such a cap could never be made to perfectly cover the orifice of exposure without leaving spaces between it and the surface of the pulp, it being contrary to physiological laws that there should be such spaces, the pulp would protrude into them, thus causing irritation and inflammation from its abnormal shape and position.

Sometimes the force used in filling would press the cap down upon the pulp, so producing the same result. Another fruitful source of trouble was the placing of metal fillings over metal caps, thus making good conductors of thermal changes and producing irritation and death from frequent shocks.

Other substances were tried as gold beater's skin, thin cork, papers, wool fibers, Hill's stopping and other preparations of gutta percha, etc., perhaps with occasional success, but those previously named were the materials generally resorted to, and they were all open to the same objection, namely, lack of adaptability. And the failures were so universal, that the practice was almost entirely discontinued.

Still I am not prepared to admit the hypothesis, that irritation must inevitably ensue, and the part die. In spite of failures the theory is still tenable, that if the pulp can be surrounded with conditions approximating those under which it is found normally, it will continue its normal functions.

The conditions essential for the preservation of the pulp are:

1st. The removal of all external sources of irritation, as decayed dentine and foreign substances in contact with the pulp.

2d. It is essential to subdue all inflammation of the pulp and dentine.

3d. The material used for capping should be plastic, of such a semi-fluid consistency as to mould itself perfectly, without pressure to the pulp and dentine. It should harden promptly and sufficiently to withstand all necessary pressure in filling, it should unite firmly enough to the walls of the cavity to retain its position. It should be a non-conductor and a non-irritant. We have no agent at present which will fulfill all of these conditions; that which approaches most nearly, is the oxy-chloride of zinc, which fills all but the last. The chloride of zinc is a powerful irritant.

It is to be hoped that ere long, chemistry will come to our aid, with some agent which will meet all the desired requirements.

At the present time many able practitioners decry the practice of capping pulps, maintaining that it is better policy to destroy them, and treat them as dead pulps. Claiming that they can not be successfully capped, and classing oxy-chloride of zinc with the other materials used.

This however is not doing justice to it, for it combines more of the requisite conditions than any other known substance, and has only one drawback, and in the majority of cases the pulp can be wholly or nearly protected from the irritant effects of the chlorine.

The advantages to be gained by the preservation of the pulp have been previously stated, and are so evident, and so great, that any means that gives fair prospect of success in favorable cases only, should be used at least in those favorable cases. A true physician always says "that while there is life, there is hope."

And in these cases if the operation fails to preserve the life of the pulp, the tooth is only in the same condition it would be in had the pulp been devitalized with arsenic, excepting

the danger that might arise from the absorption of the arsenic.

It is stated upon the authority of some of our most intelligent and reliable operators, scattered over different parts of the country, that with cases of exposed pulp where there has been little or no inflammation, they are successful in nearly every case in preserving it.

In cases where there is a great deal of irritation, inflammation and even congestion, they are successful in the majority of instances in allaying the inflammation and reducing the pulp to its normal condition, and then usually have little trouble in capping it. Some even go further, and where suppuration has commenced, endeavor to, and claim that they are successful in sloughing off or excising the dead portion, restoring the rest to a healthy condition, and capping it.

I myself have seen some marked cases of this mode of treatment, but have not seen it carried to the extent practiced by some. Notably perhaps among whom Dr. J. Taft argues that if he can save a portion of the pulp in the root of a tooth he is accomplishing a desirable end, as he is preserving the life and nutrition of at least a part of the tooth. The question now arises, having fulfilled the conditions demanded by the theory, is that theory verified? To this, in the absence of better authority at my command, I will answer, that I have seen a number of cases in which I knew the pulp to have been fully exposed, some of them over considerable area, when capped, over which when the capping was removed, there was found to be a septum of secondary dentine, or amorphous mass of calcific deposit of varying thickness, similar to that previously spoken of.

When I say a number of cases, I mean six or eight, not a very large number, but enough to fully verify the theory. And having during the last five or six years capped or assisted in capping hundreds of pulps, very few of which have ever given evidence of irritation or death, the presumption is that they have protected themselves by calcific deposit, or at least maintained a normal condition under the cap.

There are many attendant circumstances, and pathological

conditions that must not be overlooked, and that must modify the course of treatment of exposed pulps.

But time will not allow me to do more than name some of them at present. A very frequent cause of failure is the irritation kept up by the nutrient calcification of the pulp, for this there is no remedy: But there are many systemic conditions some of which can be palliated by systemic treatment that render it difficult to cap pulps. Among these are the malarial poisons, scrofula, syphilitic taints, nervous prostration neuralgia, and the many unsatisfactory conditions of health arising from enfeebled nutrition.

NUTRITION.

BY A. J. TURNER.

Read before the Indiana State Dental Society.

In the study of nutrition there is so much involved that in a paper of the dimensions which we propose to give to this, it would be impossible to present all the interesting phases which offer themselves and which are so closely allied to our subject that they may be considered part of it.

Nutrition: from *nutrio*, to nourish, begins with the food we eat. It is a lamentable fact, which all observers recognize, that too little attention is paid to this beginning of the elements of life. We do not forget that the woman of to-day has changed in many respects, for the progenitors of our race. In no country in the world are women so beautiful as in our own broad land. As the girl develops into womanhood, we begin to realize the beauty of Milton's verse put into the mouth of Adam.

“Oh fairest of creation, last and best,
Of all Gods works, creature in whom excelled,
Whatever can to sight or thought be formed,
Holy, divine, good, amiable, sweet?”

This lovely American woman, with gentle refinement, graceful figure, vivacious, entertaining, charming, develops into a fragile being, to be in a few short years changed into one of premature decay. We shall not stop here to show how the peculiarities of climate, sudden changes in temperature and high pressure mode of living may enter into the causes of this premature decay. Neither have we the time nor inclination to compare the different conditions among the races of earth, in which we find this simple question exemplified. I have just said simple, but it is being so much overlooked, that its very profundity and abstruseness is lost in this very simplicity. The Scotchman has come to regard his oat meal and porridge as much a matter of fact of everyday-life as the Irishman does his potatoes. The proverbial roast beef and plumb pudding of the Englishman, marks his rounded outline and florid complexion, while the savant of the culinary art, the Frenchman, regards no dinner complete without his soup, no matter of what made, even regarding horse hide or old boots as a better base than no base at all, so that he be furnished with his dish of soup. The Italian prefers his maccaroni to the Irishman's potatoes and the American, poor fledgling of humanity on nutrition, forgetting everything but palate and passions, voraciously devours his soda biscuit and mince pies.

Now we lay down the proposition that to understand nutrition, we must remember that food should contain two elements, one to nourish and the other to give heat. And just so much as we may overlook these qualities shall we suffer in the formation of the ultimate tissue and bone. The infant of every race and clime begins with its mother's milk, and simple though it be, it subserves all the necessities of this important and formative period of life. Simon's analysis of mother's milk, makes it consist of water 883.6; butter, 25.3; casein, 34.3; milk, sugar and extractive matter, 48.2; fixed

salts, 2.3 equal, 1,000 parts. Here we find all the requisites for the nutriment of the child. We can understand then, how anything which interferes with the formation of healthy milk, will in like proportions, affect the formation of tissue in the infant. For purposes which will disclose themselves as we progress let us now give Mr. Haidlen's analysis of cow's milk: Water, 873; butter, 30; casein, 48.20; milk sugar, 43.90; phosphate of lime, 2.31; phosphate of magnesia, .42; phosphate of iron, .07; chloride of potassium, 1.44; chloride of sodium, .24; soda in connection with casein, .42; equal, 1000.

Let us now return to our proposition that to understand nutrition, we must use food containing the two elements, one to nourish, and the other to give heat. And for the sake of explaining, we will divide the two into, first, albuminous or nutrient; and saccharine and oleaginous, or calorificent, heat giving. According to Dr. James Paul, we find in a chemical analysis the following result:

		ALBUMINOUS.		OLEAGINOUS.		
		Eggs.	Wheat.	Mutton Fat.		
Carbon		55.000	55.01	78.996		
Hydrogen		7.073	7.23	11.700		
Nitrogen		15.920	15.92			
		ALBUMINOUS.		OLEAGINOUS,		
		Eggs.	Wheat.	Mutton Fat.		
Oxygen	}	22.007	21.84	9.304		
Sulphur						
Phosphorus						
SACCHARINE.						
		Sugar from		Sugar of	Cane	
		Starch.	Arrow Root	Starch.	Milk.	Sugar.
Carbon		44.40		37.29	40.00	42.301
Hydrogen		6.18		6.84	6.61	6.384
Oxygen		49.42		55.87	52.93	51.315

We see immediately that the peculiarity possessed by the albuminous or nutrient over the oleaginous and saccharine, or heat giving differs in that the albuminous contains nitrogen and that while the oleaginous and saccharine contain oxygen the albuminous contains oxygen in combination with sulphur

and phosphorus. We are thus led to infer that by the processes of nature these peculiarities bring us to the point that they possess that which builds up or strengthens the body, while the oleaginous and saccharine furnishes the wood and coal to keep the body at a proper temperature for the ordinary processes to go on. Now we do not over look the fact that climate and habits of life may vary this in its application. Thus the natives of a tropical clime would require more of the albuminous while those of the poles should receive more of the oleaginous. 1,000 parts of healthy blood according to M. Lecamis' analysis gives us the following proportions;

Water	780.15	785.58
Fibrin	2.10	3.57
Albumen	65.09	69.41
Coloring matter	133.00	119.63
Crystallizable Fat	2.43	4.30
Fluid Fat	1.31	2.27
Extractive Matter Uncertain	1.79	1.92
Albumen in Combination with Soda	1.26	2.01
Chlorides of Soda and Potassium	8.37	7.30
Carbonates, Phosphate and Sulphates of Potash and Soda		
Carbonates of Lime and Magnesia		
Phosphate of Lime and Magnesia	2.10	1.42
and Iron, Peroxide of Iron		
Loss	2.40	2.50

The vast proportions which water maintains in blood is for some wise purpose. Take it away and we have less than one-third of the whole amount left. Then if we add to the water 780 and the coloring matter 133 parts, we have more than 900 parts in these two constituents, leaving less than one-tenth of the whole amount of blood to be distributed among the organic and earthy matter. What a plea we find here for water, a demand which we must constantly supply to give the blood its healthy proportions. No temperance lecturer pleads more eloquently for water than does the blood. No amount of cajoling or bribery will keep it from constantly uttering its demands for water, and no other fluid so well supplies its place. Wines and liquors only stimulate to a degree which makes the call louder and more fierce when they

have relaxed their stimulating influence and no fluid having taste or smell, can ever supplant it. How could the red globules or corpuscles float in anything but water, and how could they permeate the infinitesimally small capillary tubes, which they can now enter, without this vessel which floats them and which carries them to organs which must die without their constant food. Sooner let us give up our soda biscuit and mince pies, our mansard roofs and four in hand, than part with the pure limpid fluid which is so lavishly and so freely and without price furnished us by an all wise Dispenser of Gifts.

We have referred to mother's milk. We stated that in it we find everything necessary to the nourishment of the child, of every race and clime and condition. In this question of nutrition we can easily see that if the infant finds in this one article, all it needs, could not man, though more mature, satisfy himself with a simple diet which contains all the constituents that he needs for the constantly recurring demands made by his nature?

Remembering then that the blood must have the nutrient and the heat giving properties, we find that the food which is most demanded is the simplest. Under the nutrient, we should recommend the lean of meats, such as beef, bird or fish and potatoes, beans, eggs, milk and wheat. The meat to be easily digested, should be cooked to a rare. The eggs soft boiled, barely curdling the albumen or white. The milk never skimmed as thereby we lose a large part of the casein. The potatoes cooked with the skin on until soft to the little core in the center, which should remain hard. And lastly the wheat should be made into a flour with the kernel on. According to the Patent Office Report, 1847, page 116 the whole grain is more nutritious by half, than the fine flour which our millers grind and bolt. The same report shows the difference in weight of a barrel of flour without the bran and when only the outer coating of the wheat is taken off. It says: The weight of the bran or outer coating, would, in the common superfine flour, constitute the offal weighing

about $5\frac{1}{4}$ pounds to the barrel of flour, while the ordinary weight of offal is 65 to 70 pounds to each barrel of flour, showing a gain of $59\frac{3}{4}$ to 65 pounds of wheat in every barrel thus showing an immense loss in the earthy constituents lost in the offal of the bran.

Still further, chemical analysis of the incisors of man shows:

	Cementum.	Dentine.	Enamel.
Organic Matter	29.27	28.70	3.59
Earthy Matter	70.73	71.30	96.41

Here we see the loss sustained in using bolted flour when the enamel, that hardest of all bone, has 96.41 parts of 100 of earthy matter.

If we look to the analysis of bone we find the following, viz:

Organic Matter 32.56. Earthy Matter 67.44.

Making in bone, the largest portion consist of earthy matter. Instructive as this may be, it must be put into practice to result in the good which it could do. Just how important this question of food is, no one knows better than the physiologist, and it would seem that just in proportion as its importance increases the races ignore it. Here we may discover one of the sources so prolific and fruitful in producing decayed teeth. The teeth like the muscle, must receive their sustenance from the blood. If the blood be deficient in that which produces earthy matter in the place of healthy crusta petrosa, dentine and enamel, we have only a semblance of it, which, before they have fairly erupted, show signs of decay, in deep fissure cavities and milky and chalky fabrics as easily cut away with a sharp instrument as the surgeon's lance opens an abscess or sections a tumor.

The heat giving principle we find in the usual food, in milk, wheaten bread, potatoes, arrow root, corn and in most vegetable matter and in sugar, anything that abounds in carbon.

We part reluctantly with this part of our subject, because in it we believe we have found the germ which will disclose to us not only the reasons but the remedy, in many instances, for many of the diseases and conditions which have baffled the skill of physicians. It is in vain that we are told that

these deficiencies are supplied by the pharmacy. Drugs are not so palatable as food and the latter if properly and in good time applied, might in many instances dispense with doctor's bills and pills.

We should like to stop just here but for the fact that we have said nothing of the processes of digestion, circulation, respiration nor yet of gestation, all of which are correllatives to our subject, but which we must for the present pass by, to devote the remainder of this paper to the process of assimilation. And in considering it we wish to be as practical as its harmony will admit.

First then we assume that assimilation begins when any part of the blood arrives at that condition which enables the tissue to appropriate it. Just how this is done it is not our purpose to enquire.

When the minutest microscopical investigation fails to disclose the how, such a question is beyond our present range.

We merely recognize the fact that the blood arriving at a certain condition is metamorphosed by affinities into muscle, bone and enamel. With the exception of the latter disintegration results when its offices have been fulfilled and new pabulum arrives to supply the waste occasioned by this disintegration. Just what this condition is, is best explained when we understand the process of transformation or metamorphosis going on in the organs when the blood is brought into contact with them. There is this peculiarity which we discover in starting upon such a journey with the blood in its circuit through the body. We find in it nothing resembling the organs themselves nor the tissues, bone or enamel. Yet here we see like becoming unlike, and unlike like. A conjugal relationship, if you please, which is ready to take on the solemn and responsible duties of existence so soon as the ministerial *ipse dixit* has pronounced the union of two, one. This ministerial office is performed by the cells of each organ and the metamorphosis occurs when the elements in the blood come in contact with these cells having the appropriating power. This power is limited and is very choice of its affinities, so much so indeed that the cell generally finds but

one element in the blood for which it seems to care at all. There may be many other elements there awaiting an invitation to come in but they wait in vain, until they have been carried by the circulation to a place which, like the preceeding, is only refusing anything and everything which presents, until it has at last found the love with which it can affiliate and the union occurs. This is secretion. How lovingly and eloquently we are taught that there should be bounds set by man, on his passions and appetites. Here we see no discords marring the harmony and symmetry of the existence of the elements. There is no voracious cannibalistic propensities. There we look in vain for divorce courts. These elements have found their affinities and death only comes when their mission is complete and perfect; when the transition occurs, so peacefully and quietly and imperceptibly that they have no funeral processions, no dirges, no requiems. There is also this peculiarity in regard to these affinities. We said in our last paragraph that the appropriating power was limited. Limited not only as to the affinity but also as to the amount. The cell, like an ounce bottle, can only take up the amount circumscribed by its capacity. This satisfied, the work ceases until the child is born and sent out on its mission, leaving behind it nothing but the space it occupied in its parents heart to be again possessed by new comers brought to its door by the blood. Now if the blood fails to thus bring with it this element as it enters the organ for which it has an affinity, the organ refuses to commit a fornication, or if you prefer an indiscretion and as a result its desires are not satisfied. It pines and withers and wrinkles, it refuses to be comforted and its career ends, when the effort to find that for which it has an affinity proves fruitless. This is death.

The importance then of directing our attention to the constituents of the blood, I mean the food we eat, is here made apparent. Unless we have the nutrient properties which satisfy the demands made by these different organs, the organs must cease to act and the result of such a cessation must be first, disease, then death. With the death of the organs, our hopes of building up tissue die also. When the little

cells have performed their work and sent out the result of their affinities, we find the blood carrying hither and thither these products until they, like their grand parents, arrive at a threshold awaiting their coming.

The tissue is standing with eager straining eyes anxiously watching every passenger as he passes by the door until the well known face arrives. It has never seen it before, but it is nevertheless well known and it embraces it with an affectionate grasp until it spreads to its utmost limits in its new territory. From its start as a child from the cell, it has grown in its new relationship to be a mature being. It lengthens and broadens and deepens until it envelops within its folds, not only its parent cell but the house in which the parent cell lives, the organ and indeed is no niggard but refuses not to cover and protect several organs. Its usefulness is unlimited. It grasps with an iron hand, the femur and holds it to the tibia and fibula. It lays its affectionate arms around the inferior maxilla and brings it against its antagonist the superior. Thus by its kind offices, while it may call for its utmost powers of endurance, it assists in masticating the food which will at some future period be transformed into chyme and chyle, and enter the blood, which in its turn will bring straight to the scene of action occupied by it, perhaps to supplant it, perhaps to number its days of usefulness and drawing it from its abode, watch its decease with solicitude and care. Destiny requires that it stay not, it keeps pace with the demands made upon it, and dies like its predecessor with its work well done.

LOCAL PECULIARITIES AND DISEASES OF THE TEETH IN EUROPE.

BY C. M. WRIGHT, D. D. S.

Read before the American Dental Society of Europe.

Mr. President and gentlemen, this and the fifth subject of discussion are to me very interesting and I think important questions. A knowledge of them may help us more in our daily fight against the enemy. It may save our muscles, our gold, our patience and our patient's feelings a great deal, and only call in a little more of the exercise of our brains in the diagnosing and prescribing departments. The more we know of the cause of disease, the better equipped are we for successfully combatting it. If a general has accurate knowledge of the motives and movements of the enemy he can lay his plans with a certainty of success, and can smile calmly at the idea of defeat. So if we know the causes of our enemy as well as his motives and movements, we shall be successful as dentists.

Since coming to Switzerland I have been struck with the difference in the teeth, their diseases and peculiarities, from the teeth I became acquainted with in Cincinnati, Ohio; and in our discussions of last year, in experience here and the experiences given by our brothers at home through the transactions of their societies. I have felt an increased desire to have the peculiarities and diseases of teeth of different nations and sections of the country discussed and explained. Hoping to hear from other members I will give the result of my observations in Basel, on the Rhine. First. White (sensitive) caries abounds in children's teeth, affecting them as though from a vitiated mucous secretion about the neck of the teeth on their approximate surfaces, often under the free margin of the gum. This sort of caries is not only difficult of access, but difficult to discover. No casual glance

will discover it, and only the most careful *feeling* with proper shaped excavators or probes, can expose it till it has made a large and dangerous cavity. This kind of caries occurs between all the teeth from the incisors to the molars. Hence we have to look to our cervical walls with the utmost care, and wedge deeply and thoroughly in our manipulations. Second. Irregularities in second dentition abound, and where in Cincinnati it is rare, in Basel it is common to find persons of forty years of age with a temporary cuspid or two in either maxillary, remaining. I have seen a pivot tooth inserted in a temporary cuspid root, and to see them filled with gold and doing the work of their usual follower, is not at all rare.

Third. The disease, I suppose, we should call abrasion, chemical abrasion of the necks of teeth, is very very common. Persons with long, fine looking white teeth, have groves or large smooth notches, like the *blaze* on a tree, at the necks of the teeth. These places are sometimes sensitive and often, not at all, and seem to increase till the pulp is exposed. The teeth that are so affected are more frequently the cuspid and bicuspid on their labial and buccal sides, though it is found in all the teeth.

In Basel many of these notches have been filled with gold, and I have tried nitrate of silver applications in the smaller notches, I think, with some success. When the silver unites with the dentine, forming the black protection, the disease is apparently arrested. Sometimes the surface is so glassy and smooth like the enamel or a fine porcelain tooth, that the nitrate does not seem to have the desired effect, though I have tried the stick and the solution of nitrate of silver.

Fourth. It is quite common here to find the front upper teeth projecting frightfully over the lower incisors. The bicuspids and molars being too short for the incisors and the lower ones pushing like fiends at the upper, till they almost creep out of the mouth and over the under lip. How can this irregularity be treated in the most simple way?

Fifth. Why do these diseases appear here oftener than in Cincinnati? Why are the teeth of the valley of the Rhine, so generally liable to disease? I ask the American Dental

Society, of Europe, or the societies at home for an answer. Can Dr. John Allen's theory of the coarse bread, the half ground wheat bread and, *vice versa*, the too fine flour, account for the difference in teeth? Are the Scotch and English teeth better with their glassy enamels, because oatmeal and such grains are used more? Has *climate, water, air* anything to do with the peculiarities and diseases of the teeth? Men's teeth here as elsewhere, are better as a rule, than women's, among the aristocrats and peasants, and the peasant woman lives as a man. Let us have reasons, sound and good my brethren, if possible.

MECHANICAL DENTISTRY.

BY DR. CHISHOLM.

Read before the Tennessee Dental Association.

Mr. President and gentlemen, I am well aware of my inability to present you anything new in mechanical dentistry, not having been in regular practice since 1870. Nor do I expect to interest you but little, if at all, by a rehearsal of what all of you are more or less acquainted with. But the object of this paper is to add a mite, if possible, to the interest of the meeting by a mere statement of my limited experience and observations in this department of our calling.

The caption of this paper embraces a much larger field of thought and investigation than we propose to traverse, even were we able to do so. But as I have had but little or no experience in many of the materials used for dental bases, having confined my labors chiefly to gold and rubber, I pro-

pose to give only my little experience and observation in the use of these two materials.

Owing to the expense in both skill and material, the use of gold has almost become obsolete in this day of rubber rage, so much so indeed that many otherwise good operators know but little about its proper manipulation. Therefore to enter into minute details about this style of work, would most likely prove uninteresting on this occasion, as well as consume valuable time.

We will then speak only of some of the relative merits and demerits of this material compared with rubber, and pass on to a more extended consideration of the latter.

Gold, we claim, possesses some very desirable qualities for a base for teeth which are not found in rubber, among these is its susceptibility of thermal changes so pleasant in many instances to the patient, being a good conductor when anything cold or warm is taken in the mouth, the change is felt almost as readily as if there were no plate in it. This gives much pleasure to the patient in warm weather especially. It is without doubt also, less objectionable to the mucous membrane of the mouth, whether this is due to the purity of the metal or the prompt changes of heat or cold, or both, I do not pretend to say, I have only observed it as a fact and leave you gentlemen to seek the cause.

I have thought that the articulation is better with a gold plate, in this, however, I may not be correct.

The surface of a gold plate is more easily cleaned than rubber.

We then sum up the advantages of gold over rubber as follows, viz:

- 1st. Facility of thermal changes.
- 2d. Health to gums.
- 3d. Favorable to articulation.
- 4th. Surface of plate easily cleansed.

The *disadvantages* are:

- 1st. Difficult manipulation.
- 2d. Weight.
- 3d. Difficult to cleanse as an apparatus.

This latter is the chief objection. The difficulty of fitting the teeth accurately to the plates leave, so many receptacles for foreign matter that the apparatus becomes offensive. It should be usually placed in a glass of water during the night as a kind of cleansing process. This fact, to me, somewhat accounts for the favorable condition of the gums with gold plate wearers.

I will now speak of some of the favorable qualities of rubber and my experience in its manipulation.

Rubber has become almost universally popular as a base for teeth. This arises, doubtless, from the ease with which it is worked, its easy adaptation to the parts, its cheapness, its strength and durability, and the ease with which it is cleansed as an apparatus. It possesses all these qualities over gold, and I leave you gentlemen to judge of the relative magnitude of these qualities between the two. Some objections in both styles of work could be avoided by uniting the two, this we have adopted of late in gold work and to our very great satisfaction, and hope the day is not distant when every upper plate will be gold with rubber attachments, as in this combination there would be one objectionable feature in both styles removed and one favorable one in both retained, cleanliness of the rubber as an apparatus, and thermal changes of the gold; both desirable, while the difficulty of manipulating the gold is greatly modified also.

We now propose to give our observations in the use of rubber.

One object to be attained in a denture, is *perfect adaptation*, and here I must be allowed to object to the phrase "*suction plate*." Atmospheric pressure would be better, suction gives a wrong idea. We need only adaptation, suction only ends in this, and comfort begins where suction ends.

Why not avoid this and give comfort at once.

Our investigations in this direction, in 1866, induced us to abandon air chambers, and we assumed this position in 1867 in a meeting at Memphis. Up to that time our mechanical labors were chiefly in gold work, and our success led us to feel quite master of the situation. But when rubber became

fashionable, we confess we found ourselves in no little perplexity at times in the use of this material, to make that perfect adaptation so essential to comfort and success. But close attention to the difficulties led me, to some extent, to ascertain the causes, since which time I have had but little trouble and now I give my observations and remedy.

I have noticed that all the different preparations of rubber shrink more or less, and that shrinkage is in proportion to the extent it is vulcanized.

For instance, the Boston Star shrinks less than any I have tried, and if vulcanized a little green it shrinks less than when vulcanized hard, and so by all the other rubbers, only they shrink more. It is this shrinkage that must be overcome to make a success. Again, the shrinkage so detrimental to success is governed in a great degree by the curvatures in the plate. If the palatine arch is very deep the change will be greater than when shallow, yet if from the front to the back part of the plate be convex, which is usual, less damage is done than if the palatine arch were shallow with a concave surface from front backwards. We then set it down as a rule that in whatever direction a plate may curve, the shrinkage of the rubber increases that curvature and consequently two very important things are to be considered: First, the amount of shrinkage common to the rubber used, and second, the character of the curves in the plate to be made.

To make the proper allowance for these, constitutes the chief difficulty in close adaptation. Lower plates especially often rock and are quite unsteady from a want of attention to these two things, owing to their long curves in two directions.

To give specific directions how to remedy these difficulties is more than I would at present attempt to do, suffice it to say, that experience is better than twenty masters.

We always take impressions in plaster if possible, on this we make all the changes that experience suggests by a piece of rolled paper, camel's hair pencil and some times a delicate scraper, but such things must be used with great care

and caution, after the proper allowance is made in the impression for the usual shrinkage of the rubber, the models are gotten up and the work done in the usual way. Sometimes however, when the desired change can not be made in the impression, I make it on the modle.

In taking occlusion bites I use a small stiff wire, placed on the wax plate at the time to support it firmly and avoid its getting out of position at the time, this is very essential in lower plates.

In antagonising full sets it is best to have the grinding surfaces of the molars on a plane than to be locked into each other, as a slight lateral or forward move of the jaw would be inclined to disturb their position.

Proceedings of Societies.

KENTUCKY STATE DENTAL ASSOCIATION.

Fifth annual meeting of the Kentucky State Dental Association convened in the Parlors of the Phœnix Hotel, Lexington, June 1st, 1875.

The Association was called to order by the President, Dr. B. Oscar Doyle. The Rev. Mr. Christie being introduced; opened the meeting by prayer, after which the roll was called and the following members answered:

B. Oscar Doyle, President.

A. W. Smith, Vice-President.

C. E. Dunn, Secretary.

J. F. Canine, Treasurer.

F. Peabody, W. G. Redman and A. O. Rawls, Board of Censors.

J. F. Canine, W. G. Redman, Executive Committee.

Drs. S. Driggs, W. N. Goddard, J. W. Grant, G. W. Priest, J. O. Dedman, W. Van Antwerp.

Visitors present:

A. S. Talbert, J. S. McMillan, P. L. Dedman, S. P. Grant, J. Hoopper, R. Peckover, W. D. Allen, N. A. Beemer, W. S. Moores, D. A. Morse, J. B. Kidd, H. J. Billings.

President appointed Dr. Rawls on Executive Committee, pro tem in place of Dr. Rogers, absent.

On motion of Dr. Goddard, all dentists and physicians of Lexington and vicinity, were invited to attend and participate in the discussions.

The Executive Committee reported subjects for discussion as follows:

1st. Prevention and treatment of caries upon the proximate surfaces of teeth, and is it good practice to extract teeth from crowded dentures to prevent or arrest decay.

2d. Filling teeth; comparative value of different materials; description of methods of operating.

3d. Probable causes of frequent failures of fillings in the proximate surfaces of molars and bicuspid.

4th. Treatment of dental pulps for their preservation.

5th. Mechanical dentistry. The relative value of celluloid and rubber as a base for artificial teeth.

Dr. Goddard exhibited some very peculiar specimens, consisting of some dozen perfectly formed teeth taken from the socket of a deciduous canine tooth, by Dr. D. N. Morse, of Richmond. None of the teeth being larger than small grains of wheat. On motion dues of Dr. W. H. Shadoan were remitted and his name dropped from the roll at his request.

Adjourned, to meet at 8 o'clock p. m.

EVENING SESSION.

Association called to order by the President. After some consideration of the constitution and by-laws, the first subject

on programme for discussion, that of prevention and treatment of caries upon the proximate surface of the teeth and is it good practice to extract teeth from crowded dentures to prevent or arrest decay, was taken up and discussed by Drs. Canine, Redman, Van Antwerp, Rawls, Peabody, Goddard, Priest, Smith and Doyle, when on motion further discussion was postponed and meeting adjourned to meet at 8:30 next morning.

SECOND DAY.

Association called to order by President Doyle. Dr. Lambkin, member from Georgetown, was reported present, and the following visitors: Dentists, Drs. Kelley and Justice. Physicians, Drs. Buckner and Chinn. The President announced next business in order, further discussion of first subject, which was continued for short time and passed. The second subject, Filling teeth; comparative value of different materials; description of methods of operating, was taken up and in connection with which Dr. Rawls read an essay on the following subject. Does past experience justify the use of cohesive foil for filling teeth.

DISCUSSION.

Dr. Peabody: Our profession is a progressive one. In order to progress we sometimes have to retrograde. While I was at one time an extremest in the use of soft or non-cohesive foil, and afterwards leaned towards the exclusive use of cohesive foil, I am now thoroughly eclectic in everything. I do not believe that any rigid rule from which there shall be no deviation in regard to the use of materials can be laid down in the practice of our profession. I find good in all, what I find to be good I adopt, that which is not good I discard. I can not agree with the position taken by those who use cohesive foil exclusively, yet I think cohesive foil, at times, necessary in the performance of a certain class of operations which can not be accomplished with soft foil. For general use I should certainly give my preference to non-cohesive foil. Gold introduced on the wedge principle, will

give better results and save more teeth when used by the average dentist than gold which depends on the welding principle for its retention. Cohesive foil, if not placed just where it is wanted, can never be made to go there, the force of an instrument on it tends more to harden its surface than to force it to any desired position, and the more force there is applied the harder its surface becomes. Soft foil, on the contrary, can be forced to its position, if not placed there by the foil carriers. The force of an instrument on soft foil is felt all through it, and every blow of the mallet and every ounce of pressure brings the foil more closely in contact with the walls of the cavity. I find many carefully made, handsome cohesive foil fillings in approximal cavities that fail at the cervical wall. That point, being constantly bathed by the mucus of the gums, is in more danger than any other portion of the filling, therefore more care is required, more thorough adjustment of the foil, that it may be brought into the closest possible contact with the dentine and enamel, this can more readily be done with soft than cohesive foil, particularly in those cavities where the eye can not rest on all its parts. In compound cavities it has for years been my practice to put one or more large cylinders of soft foil at the cervical portion, for a while I was content with this, but I gradually added more soft foil, using less cohesive, until I now fill three-fourths or more of the cavity with soft foil, bringing it in contact with all the edges, using cohesive foil merely as a key or capping for the coronal portion. In cylinder fillings of soft foil in crown cavities I often introduce cohesive foil in the center, to act as a key and to give it additional density. I think the idea that the harder a filling is, the better it is, is a mistaken one. We see gold fillings of soft foil, put in twenty and even thirty years in the crowns of molar teeth, by hand pressure, before the use of the mallet was known, that have saved the teeth perfectly and have worn away little more than the tooth has. What more is desired?

Certainly careless and hurried operations will come nearer succeeding with soft foil than with cohesive. Where soft foil can be used equally well with cohesive, less time is re-

quired to make a good gold filling than with cohesive foil, thereby saving our own strength and that of our patients. I believe the best gold filling that can be made, is one where soft foil is in contact with the walls and cohesive in the center. Our aim should be to perfect ourselves in the use of both, so we may handle both with equal skill.

Dr. A. W. Smith: I am not an extremest in the use of cohesive foil, although I give it greatly the preference in my practice generally. I use some soft foil in connection with the cohesive and also make a few soft foil fillings but only in cases of cavities with projected walls, such as a cavity in the grinding surface of molars. I believe in eclecticism, in the true sense of the term, in the practice of dentistry; take the best of all that is good in all cases, use the screws to retain fillings when practicable, I use the heavy foils generally, Nos. 20, 40 and 60, seldom as high as No. 120. Think that we generally mallet fillings too much. Fractures of the enamel so often spoken of and urged as an objection to the mallet, are caused by the careless use of the mallet. Any operator that thoroughly understands the use of cohesive foil and with an ordinary amount of caution, need not commit this error.

I seldom have trouble at the cervical wall; use the rubber dam exclusively; use Varney's pluggers or some of similar pattern; separate teeth with pledgets of cotton; prefer contour fillings for bicuspid. I should not cut between teeth simply to find out if the tooth was decayed, would consider it malpractice, have very little use for the file or disk except to finish fillings.

I will say a word in regard to one class of fillings and one kind of material.

Most of my patients are children and I take great pleasure in trying to save their first permanent molars, which I regard as the most important in the set. These teeth generally decay very early, and often before the patient is eight years old, it will require from fifteen to twenty-five grains of gold to fill them. To prepare these cavities, the patient need not be confined in the same position more than two or three minutes at a time, and in no case will it require

more than five minutes to introduce the gold. After being introduced it can be condensed slowly without wearying the patient. I use non-adhesive gold in the form of cylinders. No cylinder to contain more than one and a half grains of gold. No napkins, rubber dams or other disagreeable appliances are necessary for keeping out the moisture. Fillings, properly made in this way, will never fail, and can be put in, in less than half the time than by any other method. The object in making those and all other fillings should be to accomplish the desired end in the shortest time and without the least annoyance and expense possible to the patient. I believe that soft gold in the shape of cylinders, properly handled will save more teeth than gold in any other form or any other material that has been used for that purpose.

Further discussion postponed until evening.

Dr. Priest offered the following resolution:

Resolved, That a clinic be held this afternoon at 2 o'clock, at the offices of Drs. Drigg's and Rawls, and that as many operators be appointed as can be supplied with chairs, it being the desire of many dentists present to see the different modes of filling teeth with both soft and cohesive foil.

On motion, Drs. Rawls and Smith were appointed to operate with cohesive foil, and Drs. Redman and Doyle, to operate with soft foil.

On motion of Dr. Goddard, the proceedings of this meeting were ordered to be printed in the DENTAL REGISTER and the editor requested to furnish each member with a copy of the same, and the bill ordered paid by the Treasurer on order of the President. On motion, adjourned, to meet at 8 o'clock p. m.

EVENING SESSION.

Association called to order by the President, who announced that the next business in order would be continuation of discussion on the subject of Comparative value of materials for filling teeth, description of methods of operating.

Dr. Smith wanted to know Dr. Redman's objections to amalgam.

Dr. Redman: I have no use for it, it may be good in its place, but I do not think that is in the teeth.

Dr. Morse: I would like to hear this subject freely discussed, I have never used it in my life and have no use for it at all, but if any one can say anything in its favor, I would like to hear it.

Dr. Goddard said he had used amalgam and had seen a tooth lately, which he filled with amalgam twenty-five years ago, and which, at the time it was done, the patient wished to have extracted instead of filled, thought that amalgam should be used dry or free as possible from mercury, with as careful preparation of the cavity as though gold was to be used. Dr. Grant said that he felt a great interest in the subject, for a long time he did not use amalgam but now used it in some cases, but generally preferred tin for cheap fillings.

Dr. Van Antwerp: I have used amalgam in my practice but the longer I use it the less use I have for it, however I think in a few cases it might be used successfully; very much depends on the quality of the amalgam as well as skill of the manipulator; have seen tin fillings which had been in forty-three years, and much prefer to use tin as a cheap filling and amalgam little as possible.

Dr. Smith used amalgam sometimes, but had little use for it. In large cavities where pulp was, dead generally filled roots with Guillois's cement and over the same with gold. Had watched some of the cases for four or five years and find they are doing well.

Dr. Redman had tried these plans for ten years and thought that pecking on cohesive gold filling with the mallet could not be done without injury to the tooth, but with soft foil thought the most perfect filling could be produced. He objected to amalgam, many years ago had seen a lady with beautiful teeth, but some of her back teeth were filled with amalgam, and after suffering a long time with neuralgia she finally lost them entirely.

Dr. Goddard: The amalgam made use of at the time Dr. R. speaks of, was very different from the amalgam made now. Many years ago I had a tin filling in my tooth which

I removed, and went to Dr. — to have it filled with his new plastic filling, on my way stopped and bought some cake, eating along on the way to his office, went in and had the tooth filled and when I came out took my knife and dug the filling out and when I did so, also dug some of the cake from the cavity, now we all know that a tooth filled in that manner can not stand. Amalgam, in those days was made by filling old silver dollars and rubbing the filings up with mercury.

Dr. Driggs: I would like to hear from any one who has noticed any galvanic action where gold and amalgam have been used in the same mouth. e

Dr. Van Antwerp answered that he had noticed cases of galvanic action where certain conditions favored the conduction of galvanic currents. Believed that action of this character takes place in mouths where gold and amalgam had been used for filling the teeth, but thought that certain other conditions were necessary to cause galvanic action besides the mere fact of both materials, being in the same mouth.

Dr. Rawls: I have seen very many teeth saved by filling with amalgam which I had reason to believe would have been sacrificed in a short time, had they been filled with other material, and though I do not use it often yet I think there are cases in which amalgam can be used with as good, if not better results than any cheap material for filling teeth, and to better advantage, in a few cases, than common gold.

This morning Dr. Redman, in his remarks on the subject, contended that soft foil could be used for filling in the six year molars with better success than any other material. Now this may do providing the cavities are not extensive and the tooth structure ordinarily good, but when the cavities are very large, occupying most of the grinding surface and broken through into the approximal and the tooth of indifferent structure, then I would not consider it good practice to fill entirely with gold. In most cases when the six year molars of children are badly decayed, and when they can be filled, I believe it better practice to coat the walls of the cavity with a thin varnish or solution of gum shellac, fill the greater por-

tion of the cavity with os-artificial, Guilloi's cement or some kindred preparation and complete the operation by filling over with amalgam. Teeth thus filled will last until the patient is, say twenty years of age, when the tooth structure will be better and, then if desired, the amalgam can be removed and replaced with gold.

It is true that by filing or chiseling away a goodly amount of tooth structure in these cases we could fill at once with soft foil, and say of the fillings they were good, that is, in themselves, but is this correct practice? Is it right to sacrifice so much tooth structure and thereby prevent natural antagonism of the tooth with its fellow, when by other means, such results could have been avoided. Many of the bad results following the use of amalgam are caused by bad manipulation, men sometimes take for granted that because amalgam is a cheap filling it should be put in the cavity in the cheapest way, when really if any difference be made at all in the preparation of the cavity, it should be made in favor of amalgam. It was said this morning by Dr. Peabody, that when using cohesive gold for filling approximal cavities he invariably noticed failure of the fillings at the cervical wall. I desire now to know of the gentleman, if there exists any good reason for failure at this particular part of the filling. Surely the structure of the gold has nothing to do with it, neither can it be proven that any peculiar chemical agent is used in its manufacture which might by any means bring about such results. These things being out of the question, we can only attribute the failures to a misapplication of the material. A moment's thought should convince any one that the gold could be placed as completely in contact with the cervical wall of a cavity as with any other wall of the same. It has been said, by Dr. Priest I believe, that in drilling retaining points for this class of work, the drill was apt to plunge into the pulp cavity, or so nearly to it that in filling, the thin intervening dentine would be driven in upon the pulp and cause inflammation and final loss of the tooth. This is certainly a very weak argument against the use of cohesive foil. Must we be governed in our practice by

the mistakes of men? Must we condemn the use of cohesive foil, for the reason that bungling hands occasionally misdirect a drill. One other point in connection with this subject has not been touched. Suppose a case is presented of an incisor badly decayed on the approximaal surface, the pulp exposed and healthy, the palatine and labial plates of enamel broken down to a level with exposed portion of the pulp; you desire to protect the pulp by capping and then fill over the capping. Now tell me how you are to proceed with non-cohesive gold, where are your walls within which to confine your cylinders. There are also other cases in which no matter how you manipulate non-cohesive foil, it can not be made to serve the purpose.

I do not wish however to be understood as condemning the use of any material for filling teeth which has thus far proved of value, but on the contrary think it the duty of every man in the profession, who has its interests at heart, to thoroughly acquire the use of all materials, and acquaint themselves with all modes of operating whereby the most good can be accomplished.

Dr. Doyle: I would state in reference to this subject, that during my studies as a student, I never saw an amalgam filling, and had been in practice some time before I used it. A gentleman called on me whose back teeth had been filled with amalgam and his front teeth with gold. The gold fillings having failed he had them refilled with gold and they failed the second time, and, since the amalgam fillings still remained good, he concluded to have that material used in refilling his front teeth and came to me for that purpose. I remember well the first tooth I filled with amalgam, that tooth still remains good. I do not think that amalgam can be used successfully in ordinary sized cavities, and have never seen amalgam successful where the walls were thin and light, though I think it has stood the longest in teeth when almost any material could have been used. I believe that galvanic action is some times occasioned when gold and amalgam are used in the same mouth. In regard to other materials for filling teeth, I must say that I honor and

respect any member of the profession who strives to succeed, whether he uses cohesive, non-cohesive, amalgam or tin. I have endeavored to study thoroughly, all the various methods of filling teeth, and think at one time I ran into excess in the use of cohesive gold. It was a very seductive practice and I was somewhat deceived.

The Board of Censors reported they had received applications for membership from the following persons:

W. S. Moores, D. D. S., M. D., Maysville, Ky.; J. Hooper, of Owington; W. W. Justice, of Winchester; J. N. Floore, Frankfort; J. T. McMillan, Paris; T. D. Kelley, Lexington; N. J. Billings, M. D., Louisville; and cheerfully recommended them to the Association. The report was received and ballot ordered separately and each one having received a majority of all votes cast were severally declared duly elected.

On motion, subject No. 3 was passed. On motion, of Dr. Rawls, the election of officers and selection of place for next meeting was made the special order of business for Thursday morning at eleven o'clock. Adjourned to 8½ o'clock Thursday morning.

THIRD DAY—MORNING SESSION.

Association called to order at 9 o'clock. Treatment of exposed pulps for their preservation was taken up.

Dr. Van Antwerp: I have never used lacto-phosphate of lime in the treatment of exposed pulps, but have used pepsin when the pulp was partially dead and in three I know I have succeeded in saving a portion of the pulp alive. The pepsin produced some little irritation and in order to subdue the same and prevent inflammation, I used iodine or carbolic acid. The teeth are in apparent good condition to-day.

Dr. Smith: My experience with lacto-phosphate of lime is small. Have not had as good chances for its use probably, as others, but so far my preference is for pepsin. When I get the pulp and cavity prepared I use Guilloi's cement with creosote and then fill over with the cement prepared in the usual way and afterwards fill with gold.

Dr. Rawls: This subject is of very great interest to me, I have made it a special study for several years. Did not hear all that had been said on the subject by previous speakers, but judging from the tone of remarks made in my hearing I think there must be some mistake in reference to the properties and intended use of lacto-phosphate of lime and pepsin. Lacto-phosphate of lime is not intended, as might be inferred from what has been said, as an agent to destroy or dissolve albumen as does pepsin. It was first introduced to notice of the profession by Dr. Cravens, of Kansas City, and at the time was intended to be used over an exposed, healthy pulp, in order that it might in some way cause deposition of dentine over the point of exposure, while pepsin is intended to be used as a cleansing agent, and especially to remove or dissolve albumen from dead portions of the pulp or from the pulp cavity and canals when pulp and nerve are entirely dead.

It matters not what we use as a capping for exposed pulps providing the latter be healthy and the substance used for capping be indestructible in its position, will conform itself to the shape of the parts without undue pressure on the pulp, will not be irritating and will harden sufficiently to admit of filling over with gold without being broken or displaced. We have not as yet a material combining all these requisites, but the oxy-chloride of zinc, Guillois's cement and similar preparations can be used successfully by intervening a substance between the capping and pulp, to prevent irritating effects of chloride of zinc, which is used in all of these preparations. In my practice I not only endeavor to save pulps alive when intact, but also save the remaining nerve branches when the pulp is dead to opening into the root or roots, think the latter, when it is practicable, much better than to destroy the pulp to the apex of the root.

Dr. Redman: I believe in destroying the nerves to apex of root, think this practice spoken of by Dr. Rawls is fancy and not to be relied on, is unpracticable in the majority of cases.

Dr. Priest: I am of the opinion that we should save all the life of a tooth possible and think that part of a live nerve is to be preferred to no nerve at all, however I think Dr. Rawls has made statements hard to carry out in general practice.

Dr. Peabody: I have just come in and have heard only a portion of the remarks on this subject, think those made by Dr. Rawls cover the ground, as taught by professors of the day. The remarks of Dr. Redman are also in part correct, some years ago I made remarks to the effect that I did not consider it necessary for a surgeon to use barbed instruments for the removal of any vital part. I practice that, though I do not believe in it. I usually resort to every means possible, to save the nerve alive and when I have to destroy it I use tannic acid, introduce it into the cavity, allowing it to remain several days and find after one or two applications of the tannic I can remove the pulp or nerve branches completely, the tannic acid having turned them into leather.

The Board of Censors made a report recommending D. T. Morse, of Richmond, for membership. On motion, report received and ballot ordered, which resulted in his election.

The Executive Committee reported they had examined the Treasurer's report and found the same correct, with balance of fifty-one dollars and fifty cents in the treasury at commencement of session.

The President announced the next business in order was election of officers and selection of place of meeting for June, 1876.

The Association proceeded to election of officers with the following results:

For President, Charles E. Dunn, Louisville.

" Vice President, W. S. Moores, Maysville,

" Secretary, A. O. Rawls, Lexington.

" Treasurer, J. F. Canine, Louisville.

" Censor, S. Driggs, Lexington.

" Executive Committee, W. N. Goddard, Louisville.

Drs. Smith, Rawls, Moores, McMillan and Billings were elected delegates to American Dental Association, with S. Driggs, W. G. Redman, W. W. Justice, J. H. Floore and J.

Hooper, alternates, also Dr. Peabody, delegate to Southern Dental Association, Dr. Driggs, alternate.

Louisville, Frankford, Mammoth Cave and Covington, were nominated as places for next meeting, Mammoth Cave having received a majority of all votes cast was declared the place for holding the meeting in June, 1876.

The officers elect for ensuing year were introduced and the retiring President, Dr. B. Oscar Doyle, then read an address in which very much of interest to the profession was presented. Adjourned to 8 o'clock p. m.

NIGHT SESSION.

The Association was called to order by the President, Chas. E. Dunn. On motion, the fourth subject passed and the next one in order, that of Mechanical Dentistry, relative value of rubber and celluloid was taken up.

Dr. Doyle said that very much improvement had been made in the manufacture of celluloid plates and that as now used it required much less pressure to close the flasks than formerly. Believed it much better than rubber.

Dr. G. W. Redman spoke in favor of the dry or Finley Hunt apparatus, said he had tried steam and oil but would give preference to the Hunt process. Subject passed and that of volunteer essays taken up.

Dr. F. Peabody favored the Association with a paper on alveolar abscess, one of the salient points of which was the merits of lead wire as an application for filling roots of teeth where there existed a peculiar form of chronic abscess. On motion the vote declaring Mammoth Cave as place of next meeting was reconsidered and Louisville selected instead. Adjourned to meet in the city of Louisville first Tuesday in June, 1876.

A. O. RAWLS, Secretary.

CHAS. E. DUNN, President.

Editorial.

OHIO STATE DENTAL SOCIETY.

The tenth annual meeting of this society will be held in the city of Columbus, beginning on the 1st day of Dec. next.

We would direct special attention to the official call on another page of this number. We doubt not, this will be one of the best meetings of this body ever held.

The programme is an excellent one and presents subjects for consideration of great importance, and we would suggest that every one make some preparation upon each, before the meeting; let none be satisfied with this, but bring everything new and valuable in a practical way. The meeting need not be confined to this programme, other subjects of interest may and probably will be introduced.

In view of the fact that this society has done so much for the profession in the state, and secured for it a status, not excelled, if equalled by the profession in any other state in the Union; it is proper and just that the profession should rally round its standard, and bring to it all moral and material support. This society should have a membership of at least three hundred; nine-tenths of whom should be present at every meeting, and then what grand meetings there would be and what an impetus the profession in the state would receive, every man would then receive an enthusiasm that would ripen into a holy zeal for the honor and welfare of his profession, guarding, defending and strengthening all its weak points. The committee on enrollment of the dentists of the

state will have their report ready and it is desirable that every one be present to see that he has his true position on that list. Let there be a grand outpouring of the profession of the state, such as has never been seen before. There will doubtless be many new and valuable things to be seen and heard. Come one! Come all!

STATE BOARD OF EXAMINERS.

The Ohio State Board of Dental Examiners will be held in Columbus, at the American Hotel, on Wednesday, December 1st, prox at 12 m. It is desirable that all interested, report themselves promptly at that time so far as possible, that arrangements may be made for examinations that will not interfere with the sessions of the State Society.

DENTAL VULCANITE CO.

The following communication presents the Dental Vulcanite Co. in a new role, one that the profession would do well to regard.

Such operations will serve to bring them, with all their agents, a greater measure of contempt than they have thus far enjoyed. Whatever may be the claims of that Co., wherein they have succeeded in obtaining injunctions, they should be, in the letter and spirit, obeyed. We do not believe that

injunctions should be granted in this matter, nor do we believe they would if the case could have a hearing *de novo*, wholly free from the influence of former decisions, but that is now impossible and things must be accepted as they are and not as we might wish them.

Dr. B. in this instance was not led into the difficulty by the expectation of gain, but by the whining importunity of a hireling under a mask. But to the letter.

COLUMBUS, Oct. 25, '75.

DR. J. TAFT.

Editor of Register: I wish to state for the benefit of that portion of the readers of the REGISTER who are enjoined from the use of rubber for dental purposes, that Josiah Bacon has his spies in the field, and I would advise that they avoid the trap into which I was so unwittingly led. It was done on this wise. A man came into my office and said he wished two teeth inserted, I examined the mouth and found that it was the two superior bicuspidis, the teeth opposite them in the lower jaw being gone, I was rather surprised that he should wish teeth in such a place, and especially as he was a very plain appearing man, poorly dressed and representing himself as a stone cutter, and very poor, he could not have gold plate because of expense, celluloid was suggested, he said he had tried that and the camphor made him sick, and rubber was the only thing that he thought he could wear, and if I would only make him this little piece it would be a great accommodation.

He also further stated, by way of inducement, that his mother wanted a full set and she would have them on celluloid, and would be in the next week but he must have his immediately.

Yielding to his importunity, I finally told my assistant to make it for him, as it was a small matter and there was no profit in it. The thing was done and the result was that upon this man's affidavit, I was summoned to appear before the district court for contempt, for this however I have not as yet been punished, and do not apprehend I shall be. This

man went to nearly all the dentists in Columbus and had his impression taken, but mine was the first and only one finished before the true character of the man was found out. I have thus been sold and I would caution every one to be on the lookout. He was a small and not a prepossessing man.

The description I have given including that of his mouth, will identify him to any dentist. So be on the lookout for him or any such. Yours Respectfully, J. B. BEUAMAN.

OHIO STATE DENTAL SOCIETY.

The tenth annual meeting of this society will be held in the City Council Chamber, at Columbus, on Wednesday, the 1st day of December, 1875, commencing at 10 o'clock a m. and continuing its session three days.

C. R. BUTLER, President. J. M. PORTER Secretary.

ORDER OF BUSINESS.

1. Calling of the roll.
2. Payment of dues.
3. Reading of the minutes.
4. Reports of standing committees.
5. Reports of special committees.

Election of members at any convenient time during the session, upon report of committee.

Exhibition of instruments and appliances, from 2 to 3 o'clock p. m., second day.

Election of officers during the evening session of the second day.

Dental depots occupying rooms in the same building, in which the Society holds its meetings, will be politely requested to close their doors during the sessions.

SUBJECTS FOR DISCUSSION.

1. Diseases of the gums and alveoli. Causes and treatment.
2. Diseases of the maxillary sinus. Causes and treatment.
3. Reflex influences from diseased teeth. In what direction and to what extent do they occur?
4. Dental therapeutics.
5. Bleaching teeth.
6. Preparation of proximal cavities in bicuspid and molars, and filling the same with the different kinds of foil.
7. Miscellaneous subjects directly connected with mechanical dentistry.

Col. Blount, the landlord of the American Hotel, will entertain members or visitors to the Ohio State Dental Society, at two dollars per day.

A full attendance is respectfully urged upon the members, and every respectable practitioner of dentistry is most cordially invited to be present, and shall be made welcome as a visitor.

F. H. Rehwinkel, D. R. Jennings and J. H. Warner, Executive Committee.

THE STATE BOARD OF DENTAL EXAMINERS

Will hold a meeting at the American Hotel on Wednesday, the 1st day of December, 1875, at 12 o'clock, m. Candidates for examination will please take notice.

J. Taft, President of Board, W. P. Horton, Secretary.

MERRIMAC VALLEY DENTAL ASSOCIATION.

The annual meeting of the above Society will be held in the Common Council Room, Manchester, N. H., on Thurs-

day and Friday, Nov. 4th and 5th, '75 commencing at 10 a. m., Thursday.

ESSAYISTS.

Dr. D. G. Harrington, of Boston, Mass.; Dr. Abr. Robertson, of Georgetown, Mass.; Dr. A. P. Stevens, of Portsmouth, N. H. Volunteer essays may be expected from other members. Dr. T. Fillebrown, of Portland, Me., will give a Clinic showing the use of platinum foil.

SUBJECT FOR DISCUSSION.

"Operative and mechanical dentistry." A cordial invitation is extended to the profession, whether members of the Association or not, to meet with us. Hotel headquarters at the Haseltine House. W. E. Riggs, Secretary, Lawrence, Mass., Oct. 20, '75.

MICHIGAN STATE DENTAL SOCIETY

Held its annual meeting at Ann Arbor, on the 12th, 13th and 14th of Oct. There was quite a large representation of the profession of Michigan present, and an excellent meeting was the result. The profession of this State is thoroughly alive to their best interests, and take hold of association work in real earnest, fully aware of its value and efficiency.

They feel that they have an enterprise worth working for in the Dental College established in connection with the University of Michigan, and if they continue their effort in this direction the Institution will be eminently a success. Several sessions of the meeting were held in the college building.

This association took quite an advanced position on the subject of dental education several years ago, one that has attracted the attention of the whole profession of the country and received its approbation.

The next meeting is to be held at the same place in the last week of March, next.

THE
DENTAL REGISTER.

VOL. XXIX.]

DECEMBER, 1875.

[No. 12.]

DENTAL LEGISLATION.

BY W. C. BARRETT.

Extracts from the Annual Address read before the New York State Dental Society, held at Albany, N. Y., June 30th, 1875.

While the other professions have been of slow growth, their history being almost co-eval with man's creation, dental practice is the outgrowth of a later progress, the product of a higher civilization. The necessity for its existence has come from our more artificial life, and is a concomitant of an advanced culture. But though we may not claim that we were a profession since early antiquity, it does not necessarily follow that we are *parvenus*; for wherever man has reached a high state of enlightenment, there has been our home. Whenever the arts have flourished and men have

become refined and therefore artificial, then have we had an existence. In the time of that early civilization when, six thousand years ago, that wonderful race of people existed in Egypt, with a knowledge of art and of many of the sciences far transcending that of their descendants to-day, among that people who have left monuments of their proficiency that in some respects put to shame the artistic achievements and study of the present time, there dentistry was known and respected with the other professions. In that later levantine civilization, when Christianity had not as yet thrown its light upon the world, but when tired of wars and slaughter and barbarism, men were cultivating the æsthetic tastes which raised so many noble monuments to mark the high tide of thought and artistic enlightenment, then was our profession not unknown; and though the origin of modern dentistry is yet in full view, we can trace our remote lineage far back into antiquity. If however, despite these facts, we be reproached with our recent origin, we may reply that the youngest son is no less the brother because his years are fewer.

If we would take the place which of right belongs to us, we must come up to the high plane occupied by the other professions. When, possessed of equal learning, we aspire to equal recognition, we must first take equally firm ground, and give security that we will not recede from that position. In but very few states have we an organized existence. There is no central point around which may crystallize the elements of a profession. We are generally an irresponsible jumble of learned and ignorant, capable and incapable, competent men and quacks, the latter greatly in preponderance, and this undisciplined mob has pressed forward and demanded a place beside the professions whose immunities have for centuries been jealously guarded from interlopers and charlatans. Instead of our exemplifying the true professional principle, and endeavoring to disseminate scientific truths and knowledge, it has until quite lately been the practice for dentists to jealously guard their operating rooms and laboratories from the prying inspection of their neighbors, and to hoard

up the poor scraps of knowledge they had acquired, lest their professional brother might benefit thereby. Or more probably, the possessor of some fancied or real improvement straightway secured a patent upon it, and began to vend out his knowledge. Dental patents have done more to prevent our attaining self-respect and the respect of others, than any one thing. He is scarce worthy to be called a member of a liberal profession, who only studies the field of science that he may make it tributary to his own selfish gratification;—who has no love for original investigation for its own sake, but only pursues it because it is capable of being turned into a source of personal profit;—who would use Promethean fire, stolen from heaven, to cook his steak by, and turn Pegasus into a cart horse. This is not the conduct of him who is worthy to be called a member of a learned profession; whose study is that he may gain knowledge for the purpose of imparting it to his professional brother, that thus his beloved profession may, *as a whole*, be raised, and the scientific education of its members, as a class, be thereby perfected.

To bring about this professional feeling, and to establish an *esprit de corps*, we must become thoroughly organized. I believe the best way to do this is through legally established state societies, having some recognized status.”

I am not of those who imagine that a horde of ignorant, unprincipled men, may by mere legislative enactment, become entitled to the respect usually accorded to men of scientific attainments. But I *do* believe that, having subdued a certain portion of the field of science and adopted it as our heritage, having thoroughly explored and cultivated it, some legal recognition is necessary that our title may be made good. Men are governed by and pay great respect to law, and when that great profession places its seal of approval upon our claims, we have advanced a long way toward the goal of our ambition. When we are properly recognized by the law, we have a positive status; we are under its protecting ægis; we have a criterion by which the standing of practitioners may be definitely determined. The other professions, observing that our aims are laudable, and that we are

endeavoring to separate the chaff from the wheat and thus establish a reputable practice, will accord us their respect and assistance. We shall be aiding ourselves by regulating our practice, and benefiting the people by delivering them from the risk of falling into the hands of unprincipled pretenders.

In the consideration of Dental Legislation, men are apt at once to jump to the conclusion that it means prohibition, and this it is which has arrayed against it all the quacks and many of the qualified practitioners. A greater mistake could not be made. If interdiction of any class ever be allowable, it comes only as a subsequent. The first aim of all dental legislation should be ORGANIZATION. We ought not to commence with enactments against any particular class, till they have had time to bring forth works meet for repentance. We should strive to convince the ignorant and incapable that we are laboring for the benefit of all, and thus secure their good will, and not render ourselves liable to the charge of proscription. To this end, while not throwing down one bar to their admission into our societies, we should smooth the way to the obtaining a proper professional education. To purge ourselves of all the gross elements in our midst, requires time and persevering effort. To perfect an organization that shall have the authority and possess the confidence to make its decisions respected, is not the work of a day. When, however, the other professions see such a responsible head of a body of learned men who are devoted to the study of science in their own special field, a center which gives some tangible object of recognition, such acknowledgment will not long be delayed; and therefore it is, that legally established societies are competent to do what voluntary organizations can not, being governed by a law which can compel unanimity of action.

In a few of the states of our common country, has legislation been procured. It has been of three kinds: First, stringent inhibitory laws, like those of Ohio, New Jersey and Georgia. Even in these states, there is but slight attempts to enforce the strict provisions of the statute, save in

Ohio, where they have encountered much opposition. Yet I believe that greater success in this direction has here been attained than any where else. I am indebted to J. M. Porter, D. D. S., of Toledo, in that state, for some statistics that are interesting. In the year 1873, he found that the whole number of dentists practicing in Ohio was 433. Of this number, 99 or about 23 per cent were graduates. Of the remainder 142, or about 43 per cent had passed the examining board, while 192, or about 44 per cent of the whole had done neither. Of all the dentists of Ohio, 56 per cent were legally qualified to practice, while the remainder, nearly half, were living in open violation of the law. Yet I doubt if there be another state in the Union, which can make so favorable a showing.

The second kind of legislation is incorporation of the state societies under the general laws, or by some special enactment. Simple incorporation gives no special recognition and conveys with it no privileges, except the unnecessary one of ability to hold property, and the rather dubious capability of sustaining an action at law. The state societies of Tennessee, Kentucky and Kansas, are chartered under such laws.

The third class of legislation is, in stringency, between these two extremes, while in perfection of organization it is superior to either, and is well represented by the New York State enactment, which gave birth to the Dental Society of the State of New York. The object of the originators of this law, was to thoroughly organize the profession of the state, establish for it some definite limits, secure perfect legal recognition, and institute a criterion by which the good might be distinguished from the bad, thus throwing the whole moral weight of the community for the one and against the other. So well has it succeeded in its work, especially in the country districts, that I propose to here give a review of its provisions, setting it up as a kind of example of this class of legislation.

The New York State Dental Law divides the state for dental purposes into eight districts, following the boundaries

of the judicial divisions as establishing lines familiarly known, and districting the state into convenient and proper provinces for the purpose sought. In each district the law establishes a dental society, and eight delegates from each district dental society, elected to serve for the term of four years, together with an indefinite number of permanent members, of whom five may be elected each year, to be selected from among the eminent practitioners of the state, and two representatives from each dental college in the state, makes up the state society, which the law provides shall meet at least once a year in the Capitol at Albany. Its expenses are provided for by the levying of dues upon each district society, by the dues of the permanent members, and by the fees to be collected upon conferring its diploma. District societies are subordinate to this state society, and must make to it an annual report of their status and proceedings. Each district society elects a board of censors, before whom must appear every student in dentistry who proposes to commence its practice. Should he successfully pass the examination of the board, he becomes entitled to the diploma of the society and to membership therein, and is permitted to open an office; but without such diploma it is made unlawful for any one to commence the practice of dentistry *subsequent to the passage of the law*.

Such persons only, of those who entered the profession subsequent to July 1st, 1863, as comply with the law, are to be considered as qualified to practice. For such as fail to conform, no penalties are provided, other than being constructively branded by the law as quacks. From each one of the eight district societies, a censor is elected by the state society, and these form the board of state censors, whose duty it is to meet once each year, at the time of the annual meeting of the state society, and as much oftener as is demanded by the applications of students. They make a thorough investigation of the qualifications of each applicant, and such as pass their examination they recommend to the state society, to whom is given authority to confer upon them the diploma and degree of "Master of Dental Surgery,"

(M. D. S.) when the candidate shall have paid the necessary fees and signed the requisite bond to walk worthy of his vocation.

These are the principal provisions of a law which has wrought a large amount of good, especially in the rural districts. Its advantages are obvious. The plan of organizing district societies and making them subordinate to the central head, secures the most perfect organization possible. The members of the profession in contiguous localities are banded together, and from their intimate connection with other district societies and the commingling of delegates at the meetings of the parent organization, close professional intimacies are formed, and ties which bind together the whole profession of the state. A membership is secured which is not dependent upon the thousand contingencies attending a mere voluntary association, and full attendance is assured. The society being a delegated body is composed of good men, and when it speaks it can do so as having authority. Being also in part composed of permanent members, the continued co-operation of the best men of the profession is secured, and there is added an element of greater stability. There has never been any opposition to the law, for no prohibitory action or proscription was threatened, and thus was secured the concurrence of all classes. There was no difficulty in obtaining the passage of the enactment, for there was nothing in it to arouse opposition in the legislature, and to-day the law and society are so strongly entrenched in the good will of the people, that further legislation might, if thought desirable, be easily procured. There has been no attempt at bluster; all has been done quietly but thoroughly, and while no astonishing revolution has overturned the existing order of things, the good effects of the law have been felt everywhere, and its originators have every year seen greater and still greater reason to congratulate themselves upon the original moderateness of their demands. If in the future it be thought advisable to press more stringent measures, the society having gained a firm foothold and having practically enforced previous legislation, will find it comparatively easy to obtain

enactments establishing proper penalties for the infringement of the present statute.

The establishing the degree of Master of Dental Surgery was thought to be demanded by the needs of the profession. It was never contemplated that it should in any manner conflict with, or be a substitute for that of Doctor of Dental Surgery. It is not an evidence of scholastic training, nor was it ever intended that it should be proof of having passed through the curriculum of the colleges. But there is a large class of practitioners, who from limited means or from other causes, have been obliged to obtain the most of their professional education at home. Some of them are close students, and are in reality better qualified for the practice of dentistry than many who have spent a full term at college. From business and family causes, they are unable now to give the time necessary for attendance upon a dental school. This diploma gives a ready means of determining the status of such, for the examination has heretofore been most strict. It has been so far however, chiefly sought by those who possess the D. D. S., as an evidence that they are in regular and reputable exercise of their profession, for it is only granted to such as are in actual, honorable practice. It was thought in establishing it, that perhaps it would be adopted by such other states as had proper legislation, and be respected by all as an evidence of compliance with the terms of the law. It does not in any way relieve the student from the necessity of attendance upon a dental college, as the degree of Doctor of Dental Surgery only, indicates the possession of the necessary qualifications for the practice of dentistry, while this is proof that he is putting to a reputable use his dental education, and is in successful practice. This degree, analogous to the Licentiate of Dental Surgery of Canada, though requiring much higher qualifications in the candidate for its possession, has been a great incentive to study on the part of the younger members of the profession, and indeed many of the older graduates have found it necessary to brush up considerably anticipatory to making their appearance before the Board of Censors. Instances have been, where the candidate has been repeatedly

rejected, only to go through another year's careful study and another trial. The Censors are elected for four years, and as they have usually been re-elected when their fitness was demonstrated, they become thoroughly familiar with their duties.

The law has secured for us some valuable prerogatives. It expressly entitles us to "all the privileges and immunities heretofore accorded to the medical profession:" Under it, in the cities, dentists claim exemption from jury duty, and professional fees when summoned as professional witnesses. The annual reports of the society are made to the Legislature and are printed and published as official documents, the same as are the reports of the state medical societies, and the various charitable institutions under the patronage of the state. But the greatest advantage gained through legal enactment, is in the full recognition of the claim of dentistry to an honorable position by the side of medicine, law and theology. When the time comes, and the profession in all the states is fully organized, then will be settled the question concerning the proper status of dentistry. There should be something like uniform legislation in every state! Not identical enactment, but while conforming to one model and aiming at the same result, the details may be varied to suit the necessities of each case.

The profession in a majority of the states, is fully awake to the necessities of some such work. I hope that many of those now in practice, will see the time when every state in the Union shall possess laws fully recognizing dentistry, and compelling complete organization by counties or districts, each owing allegiance to a well sustained state society. If the state be not large enough to support more than two district societies, the parent organization will still be a delegated body. My hopes go farther than this: I would have delegates from each state society meet as the supreme authority in professional matters; a NATIONAL ASSOCIATION, worthy the name, legally constituted, and working under such general laws as should give it the authority to make its decisions respected. Such an organization, composed of delegates from

each state society, would be eminently a legislative body. It would be composed of the best men of the profession, and would have such an order of nationality about it, as would give a distinct and suggestive meaning to the phrase "American Dentistry." Such a consummation is eminently worthy the best efforts of every one who has any real love for his profession, and who desires to see it take the place which by right belongs to it. The officers and members of the Dental Society of the State of New York, will gladly co-operate with any one who desires to earnestly work in this field, and to this end they invite correspondence with such as are desirous of seeing dentistry occupy its proper position before the law, more especially in those states which have as yet no legal enactments for the properly regulating of our noble profession.

EARLY HISTORY OF PRACTICAL ANATOMY.

An Introductory Lecture delivered by Wm. Clendenin, M. D., Professor of Anatomy in the Ohio College of Dental Surgery Oct. 13th, 1875.

In our text-books on anatomy of the present day we find that the names of persons are, in many instances, given to certain parts of the body. In view of which fact I have thought it might be advantageous to you, young gentlemen, at the beginning of our course, to take a brief survey of the early history of anatomy, so that you may know who these persons were and what they did as laborers in the field of science to entitle them to the distinction thus given to them.

The early history of medicine consists largely of uncertain traditions, often mingled with fables; yet the oft-quoted state-

ment of Pliny is undoubtedly correct: That if there exists any nation, which, at any epoch of its history, was without physicians, there is not one in which we do not find some vestiges of medicine. To be sure the Romans, who occupied themselves with killing, were satisfied to remain five hundred years without a regular physician. The Egyptian nation was, in medicine, as she was in other sciences, the instructress of the human race. Houdart gives special prominence to the fact that Egypt was the cradle of medicine, and in summing up his testimony of the immense knowledge of the savans of ancient Egypt, he indicates the titles of forty-two volumes of their writings, "six of which treated of medicine." We certainly know that at the time of the death of patriarch Jacob, seventeen hundred years before Christ, Egypt had her practicing physicians. We read in a book of Genesis that when Jacob died, "Joseph commanded his servants, the *physicians*, to embalm him; and the physicians embalmed Israel, and forty days were fulfilled for him, for so are fulfilled the days of those that are embalmed." Some have supposed that the practice of embalming, which was practiced at a very early day, served to familiarize the Egyptian priests of that period with the anatomy of the human body; but, according to Herodotus and other historians, this process was conducted in such a rude manner that it could not have contributed to the advancement of science.

Hippocrates—born four hundred and sixty years before Christ—a contempory of Socrates, of the famous age of Pericles, is familiarly spoken of as the "Father of Medicine." While the writings of Hippocrates, form the most ancient authentic monument in medical science, exhibit no traces of anatomical or physiological knowledge, yet he speaks of "the glands, as spongy viscera, destined to secrete humidity from the surrounding parts, and that the brain, the largest of the glands, attracts the vapors of all the interior of the body. The muscles were for the purpose of covering the bones; the nerves, the tendons, the ligaments, the membranes, are all represented as analogous organs, concurring in the same manner to the production of motion." His writings treat, in gen-

eral terms, only of the form, volume, and position of the principal organs. He dissected only the bodies of the inferior animals. Some writers, indeed, deny that he even dissected animals, or that he ever had in his possession a human skeleton. So that we may conclude with the learned and candid Le Clerk, that the knowledge which Hippocrates possessed of anatomy was little, if at all, superior to that of his contemporaries.

It is to the munificence of the Ptolemies, who, about three hundred and twenty years before the Christian era, laid the foundation of the celebrated Alexandrian library and of the school of philosophy, which is graced with so many illustrious names, that we must ascribe a new era in the history of medicine. Ptolemy Soter, and his son and successor, Ptolemy Philadelphus, brought to Alexandria the most learned men of their times, gave them apartments in the museum, and created a revenue for their maintenance. The science of medicine was cultivated in this school with peculiar assiduity, and we owe some very essential improvements to its professors. Among the most famous of these were Erasistratus and Herophilus. History furnishes but little relating to the personal of these two individuals; but through Galen, Coelius, and Aurelianus we have a full account of their opinions and practice. They are particularly mentioned as being the first who dissected the human body. The school of medicine thus established at Alexandria eclipsed all its predecessors, and for several centuries it had no rival. In the time of Galen—two hundred years after Christ—so famous was it that it sufficed to have studied in Alexandria, or even to have resided there for a time, to obtain the reputation of a physician.

The success with which the healing art was taught at the Alexandrian school was chiefly due to the fact that its founders authorized the dissection of the human subject.

As I have already stated, Erasistratus and Herophilus were the first to take advantage of the unique authority thus granted—they were the first human anatomists of which we have any knowledge; and they amply profited by the advantage which was thus given them. They advanced our knowledge

of the structure of the body, especially by pointing out the difference between the organs of the human body and those of the animals most nearly resembling it. Nearly every part of the great system of which the body is composed profited by their labors. The fame of the two anatomists is so intimately blended that it is perhaps impossible to assign to each his respective share of merit; but Herophilus was considered the most skillful in the practical department.

The practice of dissections did not long continue even in the city where it had its origin; yet the school of Alexandria produced a succession of learned men, in medicine, also in the other sciences. During the period covering the rise of the Alexandrian school, the Romans gave their attention almost exclusively to war-like affairs, so that science of all kinds, including medicine, was almost totally neglected; yet it was during this same period that she laid the foundation for her future greatness—she extended her empire beyond Italy to Egypt. Julius Cæsar burned the great Alexandrian library, a loss which Cleopatra sought in vain to repair through her spouse, Mark Anthony. But Roman domination was the scourge which proved destructive to the progress of medical science in Egypt. “That royal people, who delighted to see blood flow, not only on the battle-field, but also in their diversions and daily exhibitions, regarded as a profanation the contact of a corpse.”

About the year 200 of the Christian era, we find in Rome one of those extraordinary characters who are destined to form an era in the history of science, both from the actual improvement which they have introduced into it, and from the ascendancy which their genius enabled them to acquire over the minds of their contemporaries. That man was Claudius Galen. Galen was a native of the city of Pergamos, in Asia Minor, where there was a celebrated temple dedicated to Æsculapius. Galen enjoyed, both from birth and from education, every natural, acquired advantage. He made several voyages for instruction, and spent considerable time in Alexandria. His writings were very voluminous, amounting in all to about two hundred distinct treatises. He wrote a mon-

ograph on the human skeleton. in which he recommends that the bones be not studied in books only, but that they be seen and handled; and to do that, he advises the student to go to Alexandria, where he can see the human skeleton.

Galen undoubtedly had a knowledge of the bones composing the skeleton; and he was perhaps the first anatomist to teach the mechanism of locomotion, and to prove that the muscles take an active part in it. He says that the muscles are so numerous that they can not be easily counted, and that they unite in such a manner that several seem to form but one, and when they divide, there appears to be as many as there are tendons.

Galen's knowledge of anatomy was perhaps entirely limited to that derived from dissecting the ape and lower animals; yet he refuted the opinion that the arteries contained air, and not blood, and it must be admitted that in many respects, his works possess great merit.

But the zeal for dissection of the human subject was speedily dissipated. The Romans burned their dead, and the Koran of Mohammed prohibited even the touch of the corpse.

Rhazes, one of the most illustrious physicians of the Arabian school, who was born seven hundred years after Galen's time, paid no attention whatever to anatomy. The same may be said of Avicena, Ali Abbas, Meuse, and others of the Arabian school.

In the Saracenic school of Spain, which extended from the eighth to the twelfth century, the science of medicine seemed to retrograde, and practical anatomy was unheard of. From the twelfth to the fifteenth century, an interval of three hundred years, during which what are termed the dark ages still remain enveloped in the deepest gloom, every department of science was neglected, and among others that of medicine fell into the lowest state of degradation. The healing art, such as it was at that time, was in the hands of the monks, who still adhered to the doctrines of Galen, but with these they mixed up a large portion of superstition, and held not unfrequent recourse to magic and astrology.

Even as late as the fourteenth century, it was the custom to demonstrate anatomy on hogs and other animals, the organs of which were supposed to most nearly resemble the human body, making up the deficiencies by supposed analogies, or rather by the efforts of the imagination.

In 1315, Mondini, a professor in the university at Bologna, (in Italy), so far overcame vulgar prejudice as to have dissected two female subjects, and subsequently published a description of the human body, which appears to have had the rare merit of being drawn immediately from nature, and for a long time it was used as a text-book in many of the Italian universities. Mondini is also entitled to the credit of having given a very early, if not the first example of anatomical plates. But such was the prejudice against the dissection of the body that for more than one hundred years afterward no one dared to repeat the acts of the Bolognese professor. Even Mondini himself was not free from the thralldom of superstition, and he was not willing to open the head for fear of committing a mortal sin.

Thus, with a very few exceptions, during a space of more than a thousand years from the death of Galen, very little advance had been made in our acquaintance with the structure of the body. The professors of the Arabian school, with their successors in Italy and France, for the most part contented themselves with copying the descriptions of the ancients, without ever calling in question their accuracy. Even after the examination of the human body had become more common, it was long before the profession could so far free themselves from the tyranny of authority as to admit that any imperfection could exist in the works of Galen, and the researches of all the anatomists named were made in accordance with his teachings.

It was reserved for Andrew Vesalius to correct the errors of Galen; and this he was enabled to do successfully, because, as we have already said, Galen's descriptions were, for the most part, made from dissections of apes, and did not therefore correctly represent the conformation of the human body.

Vesalius was born in Brussels, in the year 1514, of a family

long illustrious in medicine. He was the first anatomist who threw off the yoke of authority, which had been imposed by a blind veneration for the opinions of the ancients.

Renouard (*History of Medicine*) gives the following version of the story as to the way Vesalius obtained his first skeleton: "Having observed the body of a criminal, of which the birds had so perfectly cleaned away the soft parts that there remained of it only the bones and ligaments, he detached successfully the extremities; but when he attempted to carry off the trunk, he found it so strongly bound to the stake by iron chains that he was compelled to work all night to get it loose." We find our hero next in Paris, in his zeal to observe nature for himself, disputing with the dogs and vultures for the remains of criminals. In his twentieth year he discovered and demonstrated the semilunar valves of the aorta. "At the age of twenty-three, he was nominated to the chair of anatomy in the faculty at Padua, by the Senate of Venice; at twenty-nine (in 1543), he published his great work, in which this science is placed in a new light, and with a completeness which left far in the rear all that antiquity had transmitted on the subject." In the following year he was called, by the emperor Charles V., to the court of Madrid, then the most brilliant in Europe, in the character of first physician, after which he abandoned forever his anatomical studies.

Long and bitter discussion occurred between the defenders and opposers of Galen's teachings, and it was not until after many years of severe struggle that the truth was established, and that it was finally admitted that the errors which had been pointed out by Vesalius actually existed.

Anatomists everywhere followed Vesalius, among whom were some of those who had defended the teachings of Galen: Eustachius, professor of anatomy at Rome; Fallopius, a pupil of Vesalius, professor at Padua and Pisa; Columbus, a friend and pupil of Vesalius, and his successor to the chair of anatomy at Padua. And I may mention also the names of Patricius, Gassen, Vidius, Arantius, Varolius, and others whose names are so intimately connected with the study of anatomy.

The prejudice against dissecting the human subject remained unabated, and was strengthened by papal bulls, by royal decrees. But at the period of which we are speaking a grand political revolution was commencing in Europe, which eventually produced an entire change in the civil conditions of its inhabitants, and indirectly affected, in an equal degree, its sciences and its literature. The effects of the crusades of the Reformation, and of the invention of printing "an art which derides the havoc of time and barbarism," was to give a new impulse to learning and the arts, and particularly to medicine. Public dissections were made in the universities of Italy. Bologna, which had been the first, continued to be one of the most celebrated schools of anatomy, and her fame was heightened by the names of Vesalius, Malpighi, Valsalva, Varolius, and others of equal distinction, and, in connection with one of the great social questions of the day, it may be of interest to you to know that this list of savans was graced by a woman—Madonna Manzolina—who was among the most distinguished professors of anatomy at Bologna.

The influence of the great men just named was felt and acknowledged by the more intelligent everywhere, and even by the Roman pontiff and kings. Up to this period, dissections were made by the teachers of anatomy only, and this was done in some private chamber, but under no circumstances were students permitted to handle the scalpel or *razor* for themselves, for the latter instrument was the one in most common use. Anatomical chairs were soon afterward created; amphitheatres were erected and provided with facilities for dissections; more liberal laws were enacted, rendering dissecting material more abundant, and less difficult and less hazardous to obtain.

Under these favoring circumstances many important discoveries were made. Fabricius discovered the valves in the veins; the pulmonary circulation was explained by Columbus and Cesalpine; Michael Servetus, who was burned at the stake by Calvin, discovered how the blood was conveyed from the right to the left side of the heart, and, indeed, Cesal-

pine almost attained a full conception of the circulation of the blood. The nerves were entirely separated from the tendons and some idea was had of the lymphatic system. Thus anatomy began to grow into importance, and came to be looked upon favorably by the profession at large. Among the distinguishing features of this period (the sixteenth century) is to be noted the fact that in the various universities which were established in Southern Europe, anatomy and other branches of medicine began to form a very distinguished part of the teaching. First in the order of time was the University of Salerno—first after the destruction of the Roman empire; the second, that of Montpellier. The University of Bologna is said to have had some celebrity as a school of medicine as early as the thirteenth century. Subsequently, medicine was taught in the universities of Vienna, Paris, and about half a century afterward, medical schools were established in Padua, Pavia, Milan, Rome and Naples. To these schools hundreds of students were convened from all parts of Europe.

England was the first to profit by the brilliant example of Italy. Through the efforts of Dr. Cains, the College of Surgeons was founded in 1540; and, in 1581, the College of Physicians created the lectureship on anatomy, and two years afterward built the Knight River Street Anatomical Museum, the first constructed in Great Britain. It was in this amphitheater that Harvey gave his first demonstrations of the circulation of the blood about the year 1617, but his first publication of his great discovery was not made until several years later.

But before noting the life and labors of Harvey, it may be proper to recall what were the acquisitions of his predecessors. The liver was considered, from time immemorial, as the organ of sanguification. It was supposed that the veins took their origin in the liver, and that they were the sole order of vessels that contained the blood. The arteries were supposed to contain, in their normal state, vital spirits only of which the heart was the great reservoir. Galen modified this doctrine by demonstrating that the arteries contained blood at every period of life, but he supposed that the blood did not

flow through the lungs, but that it reached the left ventricle by passing through the porosities of the septum. The opinion was not contested until the middle of the sixteenth century. At that epoch, the theologian, Michael Servetus—the same who perished, a victim of the jealousy of Calvin—dared to deny the passage of the blood through the septum of the ventricles, and contended that the blood flowed through the lungs and thence returned to the left side of the heart. Fabricius had discovered the valves in the veins. Such was the state of science at the beginning of the seventeenth century. There was only one step to take to find the true course of the blood, but that step was difficult, as we may now readily understand. This step was taken by, and has immortalized the name of William Harvey.

Harvey was a native of Folkstive, county of Kent, England. Having studied at home, he subsequently went to Italy, and remained at Padua four years attending the lectures of Fabricius of Aquapendente. He returned to his own country with the title of doctor, in 1602, and established himself in London and became regent of the College of Medicine, in 1613; about that time he commenced to make known his doctrine of the circulation of the blood in his lectures, but he did not publish the results of his researches till 1628. I briefly give you his own story, in which he depicts the obstacles he met with in his efforts to discover the truth: “Devoting myself to discern the use and utility of the movements of the heart in animals in a great number of vivisections, I found at first the subject so full of difficulties that I thought for a long time, as Francaster, that the secret was known to God alone. I could distinguish neither in what manner the systole and diastole took place, nor at what moment the dilation and constriction occurred, owing to the celerity of the movements of the heart, which, in most animals, is executed in the twinkling of an eye or like the flash of lightning. I floated, undecided, without knowing on what opinion to rest. Finally, from redoubled care and attention, by multiplying and varying my experiments, and by comparing the various results, I believed I had put my finger on the truth and commenced unraveling the

labyrinth. I believed I had seized the correct idea of the movement of the heart and arteries, as well as their true use."

Renouard remarks that, "So much care and circumspection in the search for truth, so much modesty and firmness in his demonstration, so much clearness and method in the development of his ideas, should have prepossessed every one to favor the theory of Harvey; but, on the contrary, it caused a general stupefaction in the medical world, and gave rise to much opposition. This theory, which appears to us to-day so natural that we conceive with difficulty why it was not found much sooner, was nothing less than a revolution in physiology. The controversy it excited lasted over a quarter of a century, and there was not a man at the time who made any pretension to a knowledge of anatomy, who did not take an active part in it. Even the naturalists and philosophers did not remain indifferent." Harvey, however, had the satisfaction, before his death, to see his theory of the movements of the blood universally adopted.

While we have said that England was the first to profit by the example Italy afforded, it is probably more correct to give this honor to Holland. Ruysch, Swanmerdam, Albinus and Boerhaave were the great anatomists of Holland. Haller, the great German anatomist, studied in Holland, and it was here, too, that the Monros, of Scotland commenced their anatomical course, which subsequently made them so famous in their own country. Next, in point of time, Denmark, Sweden, then Germany, France, and England, became distinguished for their schools of anatomy.

"The first Scotch anatomical museum was built (*Keen's Lectures on the Early History of Practical Anatomy*), and the first public demonstration given, in 1697. But it was not till 1720 that a regular professor was appointed. At that date Monro the first was elected professor at the extraordinary salary of fifteen pounds per annum. From this time till 1859, when Monro the third died, the history of Edinburg anatomy, and that of his astonishing family, are almost identical. True, John Bell and Knox, Charles Bell, Barclay, Innes, and others lectured in private schools; but the Monros

held the scepter. All of them lived to old age—Alexander primus dying at seventy, Alexander secundus at eighty-four, Alexander tertius at eighty-six. All were professors early in life; at twenty-three, twenty-one, and twenty-five respectively. All of them taught for long periods—thirty-eight, fifty-four, and forty-eight years; and father, son, and grandson. they held the anatomical chair in Edinburg, from 1720 till 1846, a period of one hundred and twenty-six years.”

Our brief sketch would be imperfect, did we fail to make one reference to the life and labors of Marie Frances Xavier Bichat, who was born November 11, 1771, and died at the early age of thirty-two. He was a pupil and adopted son of the great French surgeon, Desault. Bichat is the first anatomist, and to him belongs the credit of separating the human body into elementary tissues, and to ascertain the peculiar properties which characterize each tissue.

There is no science the study of which has always been attended with more embarrassments and difficulties than that of practical anatomy. At all times and everywhere, it has been generally regarded with popular odium; the highest degree of opprobrium has attached to the means and methods necessary for its cultivation, especially because bad men have been employed, and employed, too, in an illicit transaction—that is, aiding to make the dead subservient to the dearest interests of the living. The men here referred to have long been known as resurrectionists, or body-snatchers. Physicians know very well that it is wholly impossible for any one, in any branch of the profession, to become a competent practitioner, unless he be fully conversant with the healthy structure of the human body. There is but one way by which this knowledge can be obtained, and that is by the dissection of the dead. The most eminent men in the medical profession everywhere, and at all times, are those who are most distinguished for their knowledge of anatomy. The immediate obstacle, and the one attended with the greatest difficulties and annoyances has grown out of the want of material (dead bodies), or of the best means of obtaining it without doing violence to the feelings of the community.

The first and only legal source of material was executed criminals. Henry VIII. gave the College of Surgeons the privilege of dissecting four felons annually; and Queen Elizabeth granted the College of Physicians the same privilege in 1564. During the reign of George II. of England, in 1726 *all* criminals were given over to the doctors for dissection. This act continued in force till 1832, when the well-known anatomy acts were passed, making a more liberal provision for obtaining dead bodies for dissection in the medical schools.

In this country, practical anatomy was first legalized by the legislature of Massachusetts, in 1831, and soon after by New York. With these exceptions, in our own country, the dissection of the dead is still unlawful. Our legislators have almost always been on the side of the superstitious masses, and they have generally answered the petitions of the physicians by passing the most stringent laws—even the bodies of criminals who have died on the scaffold to expiate the highest crime, have been protected from the touch of physicians, as if the dissections of their bodies would be a still greater crime than that for which they were executed.

The law virtually proclaimed, as it now does, "that the surgeon should possess aptitude and skill (as well as a diploma,) and subjected him who failed to display proper skill to pecuniary forfeiture, in the civil courts, at the instigation of any dissatisfied patient; yet the only mode of acquiring that skill—namely, from dissecting the dead clandestinely obtained—was, in the criminal courts, held to be a misdemeanor, punishable by fine and imprisonment." Such is, in effect, the law under which we in Ohio, are studying anatomy to-day; and such are the laws which, *for so long a time*, forced upon communities the services of resurrectionists and the crime of body-snatching.

To relate the many stories told illustrative of the character and adventures of these men—the resurrectionists—would require much more time than we are permitted to give the subject. I will give but one illustration. Those who wish to pursue the subject further, will find in the lives of Sir Astly Cooper and John Hunter full details. But to our illustration

which I take from the life of Sir A. Cooper. A pupil, who was conveying a body, by a coach, to his hospital, was astonished to find himself in front of Bow-street police headquarters, when a driver, tapping at the front window of the carriage, said to his affrighted employer within: "Sir, my fare to so-and-so is a guinea, unless you wish to be put down here." The reply, without any hesitation was: "Quite right, my man; drive on." In order to protect the grave-yards, in the vicinity of London, the walls were sometimes raised six or eight feet above their usual height, and topped out with broken glass and iron spikes; spring guns were set in the church-yards, but they were useless, because if the resurrectionist was not intimate with the grave-digger, or watchman, he sent a woman to the funeral as a mourner, to note the position of the traps to which the wires were attached. Graves were often watched for weeks by persons hired for the purpose, and often, too, by relatives of the deceased, but all these devices and watchers were useless against the persistent efforts and cunning of the resurrectionists, as the high price for subjects—often as much as five hundred dollars for a single subject—was sufficient to induce them to incur all risks. So daring and expert were these men, and such their character, that Sir A. Cooper stated, in his evidence before the parliamentary committee, that no matter what the social position of any person in England, he could obtain his body if he desired it; and such villians were they, that for a respectable price, they would unhesitatingly make a subject of him, their best, though unwilling patron.

May we not, with truth, assert that governments ought to sustain, at least some degree of the odium which attaches to resurrectionists and anatomists?

THE EXTRACTION OF TEETH.

BY S. P. CUTLER, M. D., D. D. S., MEMPHIS, TENN.

We are all well aware that this subject has been neglected more than any other branch of our specialty. Why is this so?

Under this head may be included—the causes requiring a resort to the forceps—true and delusive indications; embracing true and false tooth ache, or primary and secondary causes, and other diseased conditions.

The shameful and wholesale slaughter of teeth, by incompetent and often unprincipled men, *dentists so called*, the mischievous career of nitrous oxide gas, now in common use. What constitutes a set of extracting instruments.

In the extraction of the deciduous teeth, nature should be the dentist as a rule, unless she neglects her work. In the permanent tooth, nature having made no provision for their removal, art must come in. All things equal nature removes the deciduous by the absorption of the fangs, their foundation being undermined they must fall out, or rather they are pushed out.

The permanent are not undermined at the bottom, but are worn away and decayed away from the top, the foundation being the last to give away, except in cases of alveolar disease, even then the process is from without inwards.

In all these cases great length of time is generally required with more or less discomfort to the individual. When the deciduous become loose from any cause before the normal, time, and are a source of discomfort, and probable injury to the permanent crowns beneath, then they may be removed prematurely, not otherwise.

When the permanent are being turned from their natural position, the cause should be removed at once. We often see

cuspid, and sometimes other deciduous teeth retained beyond puberty and no indications of their successors coming out.

In such cases we are often embarrassed and undecided what to do; even when loosened, we are not always certain a new tooth is coming.

In these cases there is no pathological action only nature's slow coach, stuck in the mud.

Sometimes these teeth make their appearance late in life and may be mistaken for a third dentition.

During the periods of dentition and desquamation, it is well known that there is greater salivary activity than at other times, and a greater tendency to acidity, decay, and systemic predisposition, from incomplete dentification. During this important period, attention should be given to mineral elements in the food.

The subject of filling deciduous teeth is one of great importance, though generally neglected in this country.

The extraction of the permanent teeth is a grave subject; not so much on account of the temporary pain and suffering from the operation, as that of the permanent detriment to the system, which is of momentous significance, as the organism has use for each and every tooth that nature has given. Not a tooth should then be removed, only from an unavoidable necessity, as nature intends all to go to the grave together.

Animals, in their native state, seldom suffer from diseased teeth, they sometimes do when too highly domesticated.

Savages in the forests, sometimes have decayed teeth, though seldom; their habits are more or less artificial. Even the ancient mound builders had decayed teeth, some of which I have now in my possession; and they had means of extracting them also, of which I have evidence. Why is it, that there has been such an increased demand for artificial teeth, since the introduction of anæsthetics? Let us examine.

The idea of suffering pain, from surgical operations of any kind, is a great terror to the mass of mankind, even the slight pain of filling teeth, oftentimes is more ideal than real.

In consequence teeth are constantly suffered to go to decay and destruction, when they could and would be sound.

In the large cities we see gas establishments solely for the extraction of teeth without pain, other establishments where mostly artificial teeth are made, teeth come out by the wholesale, by presence of the GAS, as in the other establishments. Why? Because it *pays best*.

Who are these men as a rule who conduct these establishments. Oftentimes ignorant, unprincipled charlatans.

Many of these are but professional confidence men, no better, if as good, as those infesting drinking saloons and street corners, these last only rob the pockets, while the others not only the pockets, but rob his unsuspecting victim of that which is beyond price, in consequence health impaired and life shortened.

These men have possession of the communities, where they are to a large extent, and have educated them to the belief that plugging teeth is of little value at best, and advises extraction at once, and save money and suffering.

Most of the better class of dentists, some of whom have formerly used gas have now discarded it, in consequence it has fallen into the hands of the class mentioned to a great extent.

These men claim to do cheap dentistry, and in one respect it is cheap, though dearly bought.

Countless numbers of mouths, are being converted from a comparatively physiological to a pathological condition, in consequence the digestive organs, and the entire body to a certain extent, constitutional stamina, lowered, longevity curtailed.

What would an army of soldiers be, who had only false teeth? what would great singers and orators be, with only false teeth? who would wish to marry a young lady with a full set of artificial teeth? though beautiful to behold. These are pertinent questions and apply directly to the case.

If the regimen of children was what it should be, there would be little need of the services of the doctor or dentist. Instead of hot house plants as now, children should be storm and weather proof, like the *oak* and *hickory*, with strong hands and muscles, bones and nerves, able to contend victo-

riously against the continued conflict, with outside and inside adversities.

These things are chargeable to the dentist, only in part though they have a responsible duty to perform in this direction, by giving suitable instructions to enciente females, in relation to general regimen and habits, and to the young in general.

In relation to saving teeth, instead of extracting, the profession is retrograding; are progressing backwards, and far behind what it was thirty or forty years ago, all other things equal. Why is this so? The answer has been given. There is something lacking somewhere. We might argue as some do, that if we instructed the people how to secure sound teeth, we would have nothing to do, and our occupation, like Othello's would be gone.

Again, we often see teeth lost from alveolar absorption, that could and should be prevented by skillful treatment. We often find one or more loosened teeth from all appearances, too far gone to be saved permanently, and achieve extraction, even when there is a possible chance of arresting the disease by persevering efforts on our part. Mercury is a fruitful cause of loosening teeth, especially in malarial districts where mercury is largely used, many times even where there has been no actual salivation, mercury acts as a remote cause in after years.

Dead teeth in many instances, may be retained for an indefinite time, even after diseased at the root, by proper treatment, in favorable temperaments.

Sometimes it becomes necessary to kill pulps in teeth and fill them, and this is oftentimes done with success, other times failures occur. Some dentists will not run any such risk.

The six year molars are, as a rule, the first permanent teeth that decay, and are often extracted. Some dentists advise their extraction even when sound, instead of the bicuspid, to make room, when too much crowded.

In this I am decidedly opposed, as these are the largest and strongest teeth in the mouth, occupying a side central posi-

tion, and the most important grinders, being the first of the set having predecessors.

When these teeth are removed early, from the lower jaw, more especially, there is left an ugly depression, allowing the second molars to tilt forwards and the second bicuspid to incline backwards; which sometimes in after life, tends to induce or favor, what is called jimber jaw, or ugly protrusion of chin, making a deformity. These teeth oftener decay than the upper and cause as a rule a worse deformity.

When removal, from a crowded condition becomes necessary, the greatest amount of judgement is requisite as to what tooth should be removed.

Right here, a profound insight into dental anatomy and histology, is necessary, to a right understanding of the situation.

Permit me to state, that nature puts no unnecessary teeth in the mouth as a rule; it requires all the teeth to serve a man on to extreme old age, in order that he may live out his days in comfort.

The teeth and body should all wear out together, when part of the teeth are removed, the balance have too much work to do, and wear out before their possessor. The teeth should be retained as long as there is any chance of keeping them, as much so as an arm, leg, eye, or any other member of the body. The wisdom teeth, *so called*, are generally under condemnation, before their appearance, are pre-judged, *a priori*, whether guilty of sin or not, and are often disposed of, soon after their appearance. These teeth, which have sinned ever since man got above his ancestral apeship; are often more sinned against than sinning.

These teeth are many times, too lightly disposed of, when they should be saved.

Their position enables them to do more work with the same amount of muscular power, than any other four teeth in the mouth.

These teeth are the last finishing touch nature bestows on man's evolution of the body; here the work is completed; a signal of bodily finish and perfection.

As to extraction of the front teeth, much might be said which space prohibits.

The plan is to save all front teeth where there is any possibility, when only one or two remain, these might be removed to make room for a new set, though there are exceptions even to this rule.

The fangs, if healthy, may be retained and pivoted; when a plate is to be inserted, these may be filled and the plate allowed to rest on them; this is often done. In this way, the contour of the jaw is retained. Thin shells of front teeth, should be filled if possible, and retained.

I used to follow the above plan, and I do now, so far as I can get permission, under favorable circumstances.

Right here, we are greatly in need of some permanent plastic filling, that we have not got; the coming man is to make this discovery and blessings on his head, when he does come.

Dec-3

Editorial.

THE LIST OF DENTISTS IN OHIO.

We have just received the list of Dentists of Ohio, published by direction of the Ohio State Society, from it we learn that there are, in the state, one hundred and three graduates, and one hundred and forty-two who have passed the Board of Examiners, and have a certificate of qualification, and two hundred and ninety-six who have neither; five hundred and forty-one in all. Of the latter class doubtless by far the larger proportion are practicing in accordance with the law as amended, the purport of which was, that all dentists who had been in practice over five years, previous to the passage of the law, were regarded as having complied with its requirements. There are very few practicing in the state in violation of the law. A few there may be, who are going along and striving to make preparation for an examination.

This list will be a matter of interest to every dentist in the state, by it some estimation may be made of the legal status at least, of each dentist in the state, not as fully however, as it might have been, by filling the blanks in the column indicating the licenses and graduates, with the number of years of practice, of each man respectively. This would have shown at once how many are practicing in violation of the law. We notice quite a number of mistakes in the spelling of names, the initials, etc.

We will say, in the way of apology for the Secretary of the Society, who supervised this work, that he was placed in rather peculiar and embarrassing circumstances, had his attention somewhat diverted during the time this work was

being done. This list will require revision within a year or two, and then all corrections and emendations can be made.

THE DENTAL LAW IN OHIO.

The question has sometimes been asked, has the law regulating the practice of dentistry, accomplished any good? and what will be its influence in the future?

In answer to this, it may be said, that far greater results have been attained thus far than the most sanguine hoped for. Its influence has caused a large number, especially of the younger members of the profession in the state, to enter upon a course of study and preparation, in order to answer the requirements of the law, and to better prepare themselves for practice; incalculable benefit has been derived in this respect. Most of such persons have presented themselves for examination as to qualification. This has exercised quite a stimulating effect upon even the older members of the profession. Another very palpable advantage obtained, is the arrest of the preparation and entrance to the practice of the profession of incompetent and unworthy men. No young man now finds it practicable or even possible, if proper attention is given to the subject, to enter an office for a pupilage of a few weeks or a few months and then start into practice upon his own responsibility. Nearly all who enter the practice now in the state, have graduated from some respectable college.

In this fact we have great promise for the future. Thus far the law has accomplished more than was expected.

Its efficiency in the future will depend very much upon the attention given to it by the profession throughout the

state. It is a matter of interest to every dentist, that the law should be sustained and that it should not be permitted to fall into disuse. The law is just and right, and a full compliance with its requirements, will be for the benefit of all.

Some have questioned its efficiency, because a large number of prosecutions have not been instituted under it. In reply to this criticism, it may be said, it has not been necessary because the acquiescence with its provisions has been so nearly universal. This instead of being an argument against the law, is one of the strongest for it.

CARE OF THE TEETH DURING GESTATION.

This is a subject of very great importance, notwithstanding very little direct attention has been given to it. That the teeth always suffer more or less, and in many instances very greatly, during these periods, none who have given much attention to the subject will deny.

Teeth of good structure, and that have maintained their integrity perfectly up to the period of gestation, very soon afterward begin to give indications of frailty. First by susceptibility to irritation under influences that previously would have made no impression. A sense of uneasiness is first experienced, more or less pronounced, after a short time actual pain ensues. Very frequently during this period, a change in the density of the teeth take place, that is quite apparent to the close observer. So marked are the injuries which the teeth sustain during child bearing and rearing, that a proverb has obtained amongst the common people to this effect, viz: "That for every child a tooth is lost."

There are doubtless very great differences of susceptibility

in different cases in this respect, yet almost all suffer more or less, and recognize the fact too, and would be rejoiced to know that relief was possible.

The question occurs here, why this general and marked susceptibility to irritation? An answer to this question may be found, in the fact that the nervous system during gestation is brought under a tension and a stress of function, never before experienced, nor after relief from the condition is obtained.

And again the life force is so diverted and drawn to another point of action, that the teeth (and this perhaps is true of many other organs,) are not possessed of the full tide and tone of vital endowment as before, and so are less resistant to irritating and disease producing influences.

At such periods the nutrition of the teeth is far less perfect, owing to weakened sustaining power, together with, in a great many cases at least, a want of the proper pabulum for their support. This deficiency of nutrient material occurring either because it is not received in the food or if received, is not assimilated and appropriated in sufficient quantity, and in a manner to satisfy, the great and increased demand for it.

A very large part of the nutrient material taken into the blood of the mother is required and appropriated for the growth and development of the new being. It is very probable that the original design in this process, was that the assimilating and appropriating function, should be so enlarged in its action, as to provide pabulum to answer the double demand of complete support to the formed organs of the mother, and supply to the growing fœtus. But so much interference has been made with nature's plans, and so great interruption of her processes and functions, that full conformity thereto is no where found; as a result of this, the conditions we have referred to are found.

And now what shall be done to meet the requirements. We may recognize the fact here at once that a complete return to nature's original plan can not be effected in one, two or three generations. It will take many, even though all live up to the fullest light on the subject. Any course of

treatment of the mother during gestation, that will subserve the welfare of her teeth, will tend in the same direction, for all the organs and tissues of the body.

Mere local treatment of the teeth and the parts about them will amount to little or nothing so far as changing the condition and susceptibility is concerned. It is true that then as at all other times, the teeth should be kept scrupulously clean and the mouth in a healthy condition, and when the mouth has been previously in a bad condition, local palliative treatment may be required and serve the purpose of mitigating pain and suffering. But in all cases the treatment to meet such emergencies should be more than a mere local matter. The real demand is through the system; and the first of all, the toning up and invigorating the life forces, strengthening functional action. Build up the sustaining power. The mother should receive in her food, all the constituents required to form the pabulum for each and every tissue of the body, and especially for the teeth, as it is to them we are now directing attention.

Her digestion should be especially guarded in every respect and kept as nearly to its maximum working ability, as is compatible with entire safety. Let the assimilating and appropriating functions be invigorated and strengthened, as far as possible.

Now it is not only necessary, that the supporting power should be maintained and that the nutrient function in every step, should receive attention, guidance and support, but the excretory functions of the body must receive attention as well.

In order that new material may be properly appropriated, either for sustaining fully developed tissue or for supplying growing organs, it is necessary that the debris and waste material be promptly removed. All the excretory organs should be maintained in the best possible condition, the functions of each and every one should be well performed. The skin, the kidneys, the liver and the lungs should each perform its work with promptness and energy, the greatest immunity should be secured from malarial and all subtle, pois-

onous or pernicious influences, excluding from the body, every and all things that would operate adversely to its most perfect well being.

Now in these suggestions, we have only aimed to outline that which every well informed dentist should be able to fill up and completely round out for himself.

THE CLOSE OF THE VOLUME.

With this number closes the twenty-ninth volume of the REGISTER, what it has been and what it has accomplished, its readers already know; and the good done, is in proportion to the number of its readers, and the faithful support which they with others have given it.

It is a matter of no small moment and responsibility, to meet from fifteen hundred to two thousand members of our profession every month, face to face, on matters pertaining to every day practice, that influence, more or less, the welfare and comfort of a great many thousands of people.

How often is it, that the dentist is misled, by false principles or practice, or by the vague and indefinite expression of correct principles or practices.

We have received very often, suggestions and directions in reference to the management and conducting of the REGISTER. We are thankful and glad for any thing calculated to make the REGISTER better.

What the REGISTER will be in future, will depend perhaps quite as much upon the contributors to its pages, and upon the support it receives in other respects, as upon its editor. We trust that during the coming year, the REGISTER will wield a wider and deeper influence than in the past. We

hope to secure some special aid during the coming year, which we know will be highly appreciated by the profession.



MARRIED.—Oct. 21st, 1875, Dr. J. M. Porter, of Toledo, O. to Miss Mary Folger, of Massillon, O., at the brides' home. This announcement will be received with pleasure by Dr. P's. friends, and especially so, since the impression was entertained in some quarters, that he was rather opposed to such proceedings, and was inclined to fight it out on another line.

May the joys of the happy pair ever flow on, and their happiness brighten throughout life's journey.

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